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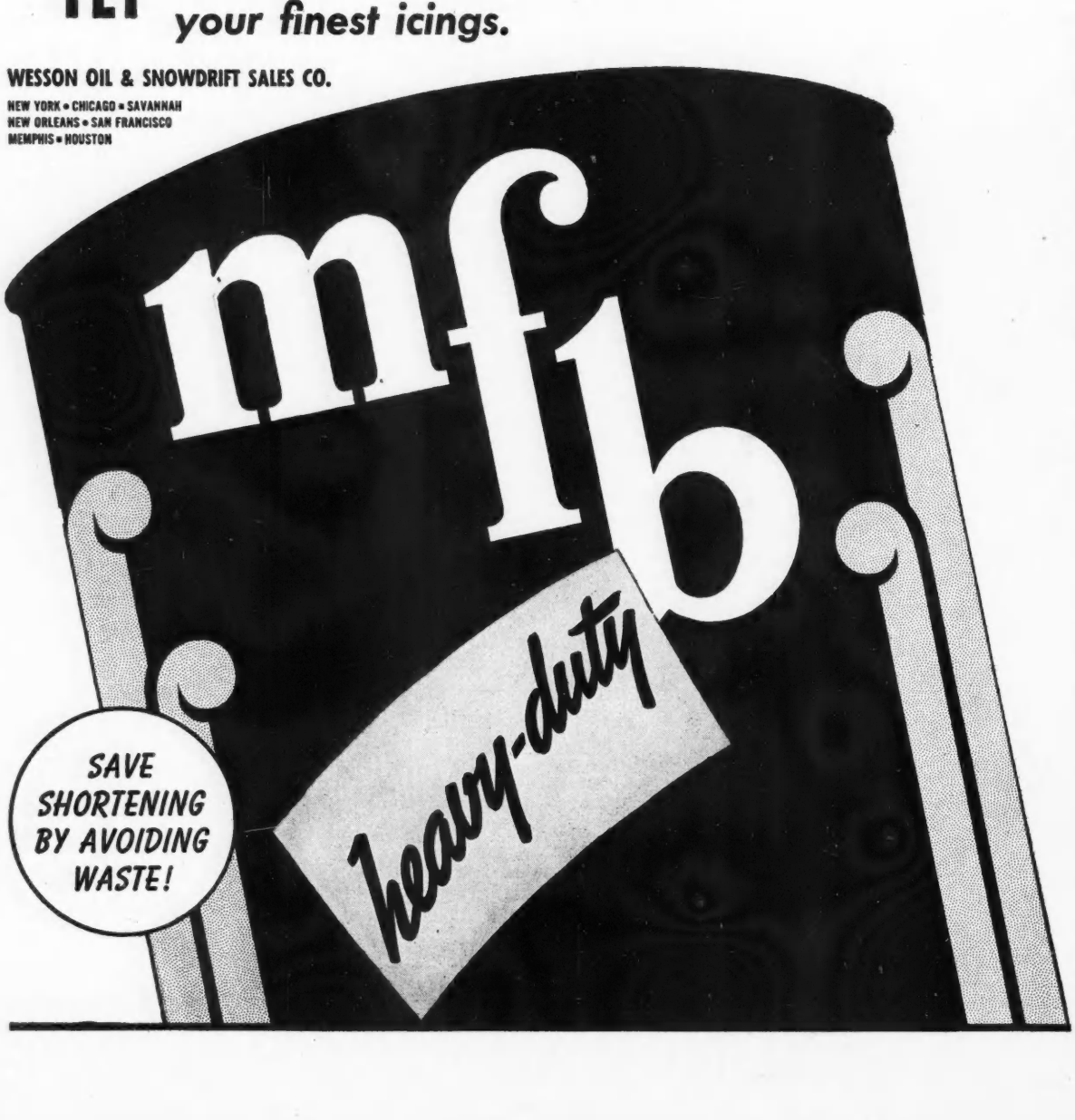

Hospital

EMPLOYEE TRAINING IN A LARGE STATE HOSPITAL[1]

CORA E. KUSNER

Chief Dietitian, Colorado State Hospital, Pueblo

IT TAKES a bit of courage these days to talk about employee training. I can just hear some of you say, "*training!*—it's all we can do to keep an employee, *any* employee, on the job these days. Who has time for a training program? With our rate of turnover, they are gone before you can teach them anything!" However, one hears a great deal now about postwar planning. Government, industry, business—all are laying the foundation for work to be done in the years ahead. Why not dietitians? And in the postwar planning, why not include a training program?

Just as surely as history repeats itself there is coming, and soon, an "employer's market," a time when we shall again be able to select our workers, when promotion of a worker will depend upon development of his ability on the job, when standards of efficiency will again be high. Then the efficiency of our administration will be judged by the quality of work done in our department, by the rate of labor turnover, accident record, and over-all costs. What are we as dietitians going to do with our opportunity? For that is what it will be—an opportunity to prove ourselves as administrators.

Since hospitals began, the dietary employees or "kitchen help," with few exceptions, have been the least carefully selected, the most poorly trained, and the lowest paid of all hospital personnel. Ought this to be true? Of course some large hospitals are fortunate enough to have well trained professional chefs—but they are the exception rather than the rule. When food cost is usually the second highest item in a hospital's budget, should the execution of so important a function be left to a group of untrained, poorly paid transients as is so often the case? Of course, the answer is "no, by all means," but what can we do to correct a situation which undeniably has long existed?

In Pueblo we believe that the solution to our problem is in-service training. Most of you have learned by experience that nowhere is a supply of satisfactory workers to be found. On the other hand, every worker brings to his job a certain capacity for growth. Even if we could offer them fabulous wages and ideal working conditions, good employees can only be developed, not hired ready-made. State hospitals have an additional problem, in that their employees need a special skill in working with the mentally ill, but basically our problem is no different from that of any large institution.

WHY A TRAINING PROGRAM IS NEEDED

Let us consider why we need a training program. First, to discover talent. Personally, the experiences of the last three years have taught me at least one lesson—I shall never return to my old complacence in judging the ability of an individual. Let me illustrate: a young woman whom I rejected for admission to one of our apprentice cooks classes several years ago, I later hired to wash pots and pans. Now she is first cook in a kitchen serving 200! True, this may be an example of wartime inflation of possibilities for advancement, but it is one of many such experiences that have taught me not to refuse anyone a chance to learn. An employee training program will uncover talent, and will fit the individual for promotion, to the limit of his or her ability.

Second, we need training because of changing techniques and the necessity of improving old methods. This is especially true of state institutions. Take, for instance, the changes in methods of meat cookery. Most of us have emerged from the period when all meat served in a state hospital was made into stew, and that in itself is a triumph; but do your cooks use the new lower temperature meat cookery methods, and do they understand why old established practices have been discarded? Every dietitian is familiar with the stock answer given by an employee when a new method is introduced—"But this is the way we have always done it!" The only way to combat that attitude is through training. If an employee is taught the *why* as well as the *how*, followed by a demonstration of the results of following a certain procedure, usually he will understand more clearly, and understanding is the real foundation upon which good performance is built. You can't build that sort of foundation by issuing orders—it takes more than that!

Third, we need training programs because only as a worker grows in his job will he remain contented. You have all talked to people who gave as their reason for quitting a previous job that they "had no chance to get ahead." Industry long ago found out that dead-end jobs were one of the main causes of employee dissatisfaction. If you want a happy, satisfied group of employees, everyone from the scullery maid up should have some opportunity for advancement. The postwar period of human readjustment will bring its own problems. Thousands of workers will have to leave the high wages and glamour of war industries and settle down to filling the routine peacetime jobs in our hospitals. Even though we select employees carefully, taking into consideration their aptitudes, skills, experience, and interest, their initial interest in the job will have to be sustained by giving them a chance to increase their skill—to grow in the job—if we are to stabilize our group of workers. For four years the Federal Government and industry itself have advertised and pushed training programs—"earn while you learn." A trend has been established which will affect future employment policies more than most of us realize.

SCOPE OF THE PROGRAM

Let us talk about what should be included in our training plans. In a large institution some knowledge of the hospital organization, how it is managed, how it is financed, its purposes and aims, and information concerning its policies are essential to every employee. This instruction should begin with the employment interview and should never cease until the day when employment is terminated and the worker is informed during the exit interview of the institution's policies regarding references, re-employment, etc. The personnel director, dietitian, or any individual whose duty it is to interview applicants, can do much to build interest by dramatizing the job under consideration. Telling an applicant something of what the hospital is trying to accomplish, how this particular job fits into the work of the organization as a whole, creates enthusiasm, and enthusiasm is contagious. Who among us would not welcome an epidemic of enthusiasm for their jobs among our workers! Training them to see their work as an important part of the effort of the whole hospital is a good way to start it.

Of course, the least complicated of training programs is teaching definite skills—how to do the job. The federal "Job Instruction Training" has taught some of us how woefully lacking we are in really adequate instruction to employees, even in the simplest techniques, such as how

[1]Presented before the American Dietetic Association, Chicago, October 25, 1944.

to run a bread-slicer, or properly clean a dish machine. Some of you, I know, have sat through that class where you were shown how to tie a simple underwriter's knot in an electric cord, and after watching the instructor do it step by step felt sure that it was easy, only to fail miserably when you tried. We need to remember that procedures which are familiar to us are as foreign to many new workers whom we employ, as is the tying of an underwriter's knot to the average dietitian. Sometimes a worker has to learn a whole new vocabulary. Words like purée, marinate, soufflé, may have no meaning for the new diet kitchen maid. Older employees will have forgotten how confused they were when they first started. Simple things, like the regulation of the thermostat on a roll-warmer, the location of the steam and water valves for the steam-table, and the reason why a steam return valve is always open, properly taught, not only make the employee a better worker but often save accidents, equipment damage, and trouble calls for the maintenance man. Special training in hygiene and sanitation should also come early in every employee's career and should be recognized as part of "learning how." Training in how to do the job does not need any complicated organization, but it does call for an established method to be observed for every new employee.

Job relations—or how to get along with other workers—is another field of training which when cultivated yields returns a thousandfold. No organization can function efficiently when personality differences are creating friction among its members. Only as we can teach our employees to analyze their own reactions and help them to grow up emotionally will we do away with the small irritations on the job which destroy efficiency and retard progress. Here, also, the state hospital has a special responsibility because of the use of patient workers. It is unfair to both patients and employees to neglect to give a new employee some understanding of mental illness and how to work with the mentally ill.

Three distinct fields of instruction, then, merit our attention: (1) the background of the job; (2) the skills necessary to do the job well; and (3) the attitude toward the job and toward other workers. How shall we go about such training? There are three major steps as there are in any teaching: First, interest you employees; second, instruct your employees; third, evaluate your instruction.

INTERESTING THE EMPLOYEES

A recent handbook for vocational teachers put out by the California State Board for Vocational Education quotes the late Dr. Frank Crane, noted journalist and educator, as saying, "Teaching is lighting a lamp—not filling a bucket." I'd like to add that sometimes you have to fill the lamp with oil and trim the wick before your attempts to light it are successful.

There are many techniques for kindling interest in employees. This effort, too, should be started in the employment interview when chances for advancement on the job are outlined to the prospective employee. One of the incentives through which we can interest employees in training programs is the prospect of promotion and increase in pay. Another is the added prestige which will come to the individual because of increased skill, or to the department because of a lowered accident record or a higher efficiency rating. Not the least of these interest appeals is just the joy of learning something new which is inherent in all of us. When we first started "Job Methods Training" we paid our head cooks and those in charge of large dining rooms overtime to attend class. This is not always necessary, nor is it always wise. The hours your employees work and the circumstances under which special training is given must determine your policy. Periodic efficiency reports which are discussed with the employee will often arouse interest in training. These reports should be made by at least three people who observe and know the individual's work, and the final record should be a consensus, not an individual opinion.

METHOD OF INSTRUCTION

Having aroused interest in training, how shall we go about giving instruction? Too often we think of employee training solely in terms of written work schedules and perhaps some group meetings. Work schedules should be made for most jobs, but we cannot stop there, and only a small percentage of employee training can be done in a classroom. In training hospital employees, as in other fields, I believe that personal contact is the ideal means of transmission of instruction or information. Nothing will show such good results in well trained workers as the personal, day-by-day contact with a really good supervisor. In a small organization, or in a unit of a big institution, this supervisor is usually the dietitian herself. The important point is that we know more about each job than the person we assign to do it. Until you have actually made coffee in a large urn often enough to have learned everything that can happen to change the quality of the brew, you are not capable of giving instruction to someone else. However, someone has said that the secret of teaching is to appear to have known all your life what you learned only this afternoon. When the supervisor or dietitian really knows how, her daily rounds will actually be training periods. She may go into the kitchen and find the soup kettle boiling merrily with the steam on full and the lid up. She will stop long enough to explain why stock should be simmered, not boiled, and why the lid should be kept closed. Perhaps she finds evaporated milk cans opened by the time-honored method of punching two holes in the top. A quick demonstration of the amount of milk wasted in a dozen cans by not opening them wide enough to rinse will make more impression than a dozen notices saying that milk cans must be opened a certain way. Sometimes these things have to be repeated day after day, and with variations, but that is the essence of supervision. When I first started working we had an old steward who, when I grew impatient, used to pat me on the shoulder and say, "But, my dear, if the employees were perfect we wouldn't need you!"

Another method of training is visual education. This is being accepted in the educational world as one of the most effective techniques. Charts, posters, an occasional movie, if your employee group is large enough, a mimeographed news sheet—all of these can be adapted to help illustrate your teaching.

Most of us use, without perhaps naming it such, the apprentice or understudy system. A new employee is turned over to an older employee to "break in." This is fine if the old employee doesn't turn out to be, as so often happens, someone who is about to leave and is not especially interested, or if the relay of instruction does not go on and on without supervision and check-up until no one knows what is being taught. In this type of instruction the card system is especially good, in which there is a definite record of skills or processes to be taught and a time limit set for instruction. Job breakdowns, or definite outlines for teaching each procedure, will do much to standardize this type of training.

Then, of course, there is the old standby—classes. Training classes require a special time, a suitable meeting

place, and if they are to be successful, a really capable instructor. With classroom teaching of adults you cannot rely on reading an outline from a notebook and expect good results. Group discussion is sometimes effective (you may learn more from your employees than they learn from you); demonstrations are good; but the best method is a combination of all three—lecture, discussion, and demonstration. One thing is especially important—the class must participate. Let us consider again Dr. Crane's statement and all its implications, "Teaching is lighting a lamp—not filling a bucket."

At the Colorado State Hospital, we have tried several types of classes. Most successful was our apprentice cooks class. This has been discontinued for the duration but will be the first effort to be resumed when the labor situation changes. Women between 20 and 35 years old, with at least 2 years of high school education, who could pass our physical examination, were employed as apprentice cooks with the understanding that after 6 months of training, if they proved capable, they would be placed as cooks. Usually there were from 6 to 9 in the group. During the 6 months perhaps one would fail or drop out. The rest would graduate, be given a certificate of completion of the course, and usually be employed. Instruction consisted of a combination of classroom work and the understudy system. First we gave them an orientation course which included a trip through the entire institution; talks by the personnel director, the head of the nursing service, someone from the business office; and an attempt on the part of some member of the dietary staff to show how their work would fit into the program of the institution as a whole. Then classes were started which covered the essentials of normal nutrition, principles of cookery, instruction in the use and care of equipment, and instruction in personnel relations with mental patients. Apprentices spent about 7 hours daily in the kitchens where they were assigned to work with one special cook to learn one special process, for instance, soup-making from one cook, desserts from another, etc. An hour each day was spent in class. A graduation dinner with invited guests marked the end of the course and certificates were presented at that time. Graduates were allowed to show relatives and friends through the kitchens, which in itself was an example of excellent public relations policy on the part of the hospital. Former apprentices have helped to carry us through this period of help shortage and some of the teaching methods we developed in working with our apprentices have helped us to use the untrained people whom we have been forced to hire these last three years.

When our dietary department took over supervision of the dining rooms and tray service on the wards we started regular group meetings of ward dining room employees. Ideal food service for the patients was discussed. Our biggest problem has been to avoid rushing the patients past the cafeteria counters and through the meal. Training mental patients to exercise some choice or at least to express a desire for more or less food has a definite therapeutic value. If this is to be done the service cannot be hurried and employees must understand and cooperate. Group meetings of a number of employees who have much the same responsibilities and problems offer an opportunity not only for uniform instruction but for exchange of ideas, discussion of difficulties, and encouragement of friendly rivalry between the units represented.

EVALUATION OF THE PROGRAM

Last of all—do not be afraid to evaluate your efforts. If the training program you initiate does not show good results, it should be changed or discarded. Careful training in use of equipment should decrease the number of broken parts and necessary repairs. We know in Pueblo from experience that it will reduce the incidence of fingers cut on bread-slicers and chopping machines. A check of labor turnover and reasons for leaving will show that where there is a good employee training program fewer employees will leave for other jobs or because of discontent and dissatisfaction. The most spectacular result we have ever achieved was with glass breakage in a large cafeteria. We had talked and threatened, kept breakage records, and were seriously considering charging employees for broken dishes. Finally I decided to see what a little educational campaign would do. We put up big posters in strategic places where they would be noticed constantly by workers handling glasses, giving the cost per glass, cost per dozen, and the actual cost of glasses broken in the previous month. In less than a week, our breakage was down 50 per cent. Visual education had done what no amount of talking could accomplish. Each institution has its own problems and special needs, but it is part of every dietitian's responsibility to develop a group of employees who know what their work is, how best to do it, and why it must be done.

The Continuing Program of the Dietitian's Aide Corps

Red Cross Volunteer Service Corps in hospitals are nothing new. Nurse's Aides go back to the last war, also the Grey Ladies, who do the little sundry things for patients that their families would do if they were there and work in cooperation with the medical and psychiatric workers. Then there are the Staff Assistants Corps who perform clerical duties in the offices of the hospital. So, it was quite natural to turn to the Red Cross Chapters when, due to the war emergency, dietary departments were shorthanded. At first, members of the Canteen Corps were sent into the hospitals to help in the dietary departments on an emergency basis. Subsequently, it was suggested that a different type of training than that given to Canteen Corps members might result in volunteer assistance of much greater value to dietitians. A course of training was therefore set up, and certain duties prescribed by the American Dietetic Association and the American Red Cross. This original course has been shortened during the past year and the prescribed duties have been somewhat changed.

The philosophy of the Red Cross in training volunteers is to supplement to the fullest extent the work of the professional. They cannot expect to, nor should they "run the show," but their training has taught them to take responsibility and they are capable of doing a really important job. Many dietitians are using the aides to the fullest extent of their ability, and have testified repeatedly to the splendid job they have done.

It is my belief that for years to come there will be a place for the Dietitian's Aide in veterans and military hospitals. The need for trained dietitians is far beyond the number available. So for some time this, in itself, will necessitate the continuance of this program. If you feel as I do that there will be a need in the post-war period, we should now begin to get the machinery in motion to have a permanent Dietitian's Aide Corps created.

One thing I believe all trained volunteers have learned is that never again can we live for ourselves alone. While there is sickness, need, and hunger at home and abroad, there will be a job for each to do. The mobilization of womanpower will help America and her allies win the war and this trained womanpower remains one of our country's greatest assets. I assure you that we are ready and anxious to help. All we want is the opportunity to put our training to its maximum use so that it will not be wasted or dissipated.—*Excerpts from an address by Mrs. Graham Dougherty, Assistant Director, Volunteer Special Services, American Red Cross, Washington, before the American Dietetic Association, Chicago, October 26, 1944.*

A FEEDING AND NUTRITION PROGRAM IN THE KAISER NURSERY SCHOOLS[1]

MIRIAM E. LOWENBERG

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THE two modern Kaiser nursery schools, which are the cooperative concern of a government agency, a large industrial organization, and a professional staff, opened their doors in Portland, Oregon, November 1943. These centers were designed primarily to offer adequate physical care of young children; beyond this, however, they were intended from the beginning to be good places for their social, emotional, and mental development. Edgar Kaiser, son of Henry J. Kaiser, and those on his staff in the Child Service Department of the organization believed that while mothers of young children were building ships to win the war, their children should be learning to live in a democratic society. This meant that they must be given the advantages, not of custodial care but of good nursery school education—advantages previously reserved for children from privileged homes and in privileged communities. There arose, also, a need for a unique food service for young children.

ORGANIZATION AND LAYOUT OF CHILD SERVICE CENTERS

The Kaiser Child Service Centers are located in two of the largest shipyards in America: one at the entrance to Kaiser's Swan Island Yard; the other at the gateway to the Oregon Shipbuilding Corporation. From the very beginning these nursery schools were necessarily different from those located in colleges, private schools, and research centers. Our employers were busy industrialists, many of whom had never before visited a nursery school or known a professionally trained nursery school teacher. When I arrived I found that the man who had planned the arrangement and installations in the institution-size kitchens had tried to adapt his knowledge of hotel and restaurant kitchens to the feeding of young children by remembering his two small daughters at home. The shipyard administrative staff had to be taught that a food service for young children was vastly different from that designed for the men and women in the shipyards cafeteria and barracks. These men almost gave up trying to understand us when I argued that our new child service foods staff was to be free to specify their own needs with regard to grades of canned goods. We said, for example, that canned peas for young children must have tender skins. To them, at first, that meant pinching each pea to see if it really was tender. It must be said in our mutual defense, however, that as we have worked together, these men have shown an increasing tendency to appreciate children's needs, at least to the extent of giving the professional staff carte blanche to do their job as they saw fit.

The two centers, operating on a 24-hour schedule, have an average daily attendance of about 800 children. During our first 11 months of operation we cared for 3000 children, most of whom ranged in age from 18 months to 6 years. During the regular school year each center has also enrolled 6 and 7-year-olds for the swing shift. From June to September, at the request of the parents, the Swan Island Yard had a program for 8 to 12-year-olds. This age group is now served only on the swing shift.

Each of the buildings, identical in architectural plan, contains 15 unit rooms intended to accommodate 25 children at a time. The children are grouped according to age and maturity. They play, eat, and sleep in these rooms. The rooms radiate as the spokes of a wheel from a circular corridor. Each unit room has a small auxiliary room which may be used by small groups for playing, eating, and sleeping. Between the units, covered play porches open out from the corridor. These are used as play spaces the year round and in summer offer a place for outdoor meals. The inner grassy court is divided by fences into play areas for different age groups.

In only two places in the building is there any centralized care of the children. One is the large kitchen from which the food is sent on food carts to each unit. An infirmary, staffed with trained nurses and a nursery school teacher, also services the entire center. The head nurse in each center has had training in public health nursing. Initial daily health inspections are made by the teachers when the child arrives at the center, and any suspicious cases are seen by a nurse. When a child shows signs of approaching illness, he is put to bed in the infirmary: diagnosis of his illness then is made by a shipyard doctor who calls twice daily at the center. All sick children are sent home either at the end of the mother's shift, or before if necessary. The head nurse and the medical director of the yard are responsible for all general policies and practices concerning health. The physical development and health program is under the cooperative direction of the chief nutritionist and the head nurse.

SOME SPECIFIC FOOD SERVICE PROBLEMS

Many of our problems in feeding are unlike those experienced in peacetime nursery schools, in which parents were often asked to make adjustments in home schedules to suit the school. Here we must begin with the premise that busy parents should have no extra burdens because of us. Our job, rather, is to lighten the load of working mothers so that they can build ships more efficiently. We hold ourselves responsible for any feeding detail which mothers cannot easily assume for their children at home. Our total job is to see that the children under our care get a good diet every day. We supplement the feeding at home, rather than ask the mother to supplement our feedings. In a few instances when children have brought cake, cookies, and doughnuts to school, the teachers have asked the parents to let us prescribe all food which the child eats at school. In a few instances we were unable to get the food supplies which would enable us to give as adequate a diet as we wished. During the late spring months, for instance, we were unable to buy as much canned fruit as we needed. I therefore suggested fruits as desserts on all the menus for home use.

Our foods service must be flexible at all times. We have had new children brought in after breakfast has been served, because the family had just arrived in town. Mothers, too, are sometimes retained at work beyond the usual time, which means that their children must be fed an extra meal. We have many children whose schedules have been upset due to wartime conditions and who have had irregular meals of unsuitable foods; they find our nutritionally-adequate diet so different that they have had to learn to eat many new foods.

Some workers ride for an hour or more to and from work. These mothers do not have time for the 2-year-old's leisurely breakfast before they leave home. Many of the children must be given a breakfast at school and at one center where the day shift begins at 7 a.m. all the children are fed breakfast.

All of the children spend from 9 to 10 hours a day at the center. Shift hours, however, vary in the two yards. The children on the day shift at the Swan Island Center, who arrive from 6 to 6:30 a.m. and go home around 4 p.m.,

[1]Presented before the American Dietetic Association, Chicago, October 26, 1944.

have the major part of their day's food at the center. All children on the day shift are given milk and a cracker before they go home because most of them must wait several hours for the evening meal. This is especially necessary at the Oregon Yard where the day shift ends at 5:30 p.m. and many of the children have a long ride home. Some of these children eat supper with the swing shift children before they leave.

Although one kitchen may send out 1000 to 1500 individual food services a day, the organization must be sufficiently flexible so that a child who is allergic to certain foods may be given special consideration. This problem, which may not place an undue strain on a small nursery school food service, must be carefully planned for when the allergic child is but one of 300 or 400 served from the same kitchen.

The wide age range of the children presents another problem. We use one basic menu which can easily be adapted to the 18-month and to the 12-year-old groups. Salads and foods requiring more chewing are served to the older children. Although the food service is primarily for children, we have a teaching staff of about 50 in each center. All teachers eat with the children, and they too must be considered in menu planning. Food plays an essential part in the happiness and adjustment of these teachers, many of whom have come two or three thousand miles to take up this war job. Whenever possible they are given other foods to supplement that available on the children's menu. Some teachers, however, prefer to have just what the children eat rather than try to teach a child why he cannot have pie at school when his mother gives it to him at home.

Many of our teachers are with children for longer hours per day than they have ever been before; groups are large and a teacher may not have a chance to eat a good meal at noon or night. We send out dessert and coffee to the teachers' lounge at 1:15 every afternoon so that they may eat this in a leisurely fashion while the children are in bed. The swing shift teachers have an even more substantial snack at 10 to 11 p.m.

One teacher may have as many as six or seven 2-year-olds or ten to twelve 4-year-olds, and she must have more than the usual service from the kitchen. Meat must be cut into bite-size pieces, potatoes taken from the skins, or baked apple skins cut into small pieces. All desserts are in individual servings. If she is in charge of several serving tables, the teacher specifies how many services of food she wants for her room so that her meal may proceed smoothly. One of our problems is to meet a constantly changing demand for different services. A teacher with one kind of training may prefer to use family service at her table; another to use counter service. Teachers and group supervisors change their plans to try new methods when old ones prove ineffective. One unit may request cups for the 18-month-old children. After many spills by bungling fingers, first one, then another size glass may be tried. We have four sizes of pitchers which teachers may use or from which children may serve milk. Close cooperation between the teachers, the foods supervisor, and the kitchen employees makes it possible for each unit to function in its own peculiar way in the total educational plan.

Some units are a long distance from the kitchen. Heated carts are peacetime equipment, so ways and means had to be devised in order that food of the proper temperature might reach each unit. Forty-five minutes before mealtime we send out cold foods and dishes. This allows the teacher and her 4 and 5-year-old helpers to set up dining tables well in advance of the meal. Hot food is then sent to the younger children one-half hour earlier than to the older children. This means that a cart does not need to make three or four stops along the way. Fortunately for us, the younger children prefer their food lukewarm.

FOSTERING GOOD FOOD HABITS

In all essential points we have been able to live up to the goals of nursery school feeding. We hold ourselves responsible for the adequate nourishment of our young charges. We know, however, that good food habits are most successfully fostered if mealtime is a happy experience for a young child. Temporarily we may have to forget that a child needs 3 to 4 cups of milk daily and be content when he drinks one half or even one third of that happily. When we started, many children had not learned to eat such ordinary foods as eggs, liver, and tomatoes. So compromises were made. Eggs were served only one morning a week; now we serve them more frequently because egg breakfasts have become popular. Liver was served in casserole dishes and tomatoes were sweetened at first and the flavor diluted with toast cubes. One of the things which had to be explained to cooks accustomed to an adult food service was why we continued to serve foods which we knew were not popular with the children; now they agree with us that as children become familiar with a food, they eat it more readily. The cooks have joined our conspiracy; they enter into our educational plan when they learn how much of a once unpopular food they must prepare at certain stages in the child's learning.

We do not cater to the whims of capricious appetites. This feeding program has offered a grand opportunity to stand firm on the desirability of food for good nutrition. Young teachers must be educated to like liver and office workers may have liver and onions on their trays instead of the children's liver loaf. We have not attempted to force an 18-month-old nor a 30-year-old. Adults who are not teaching children may go to the shipyard cafeteria, but have shown surprisingly little tendency to take advantage of this opportunity. An occasional treat on their trays, such as hot breads, highly spiced relishes, and "adult" desserts, helps keep them happy.

OTHER EDUCATIONAL EFFORTS

Another part of the educational program includes sending each week's menus home with the parents. They are made out separately for each shift and also for the 8 to 12-year-old children. Menus are reproduced in two colors: red for meals served at the center; blue for meals suggested to be served at home. A few parents encourage us by telling us that they follow these closely at home and we know that many more at least look at them. When because of some clerical delay no menus are ready for parents on Thursday, they ask for them.

The so-called odd shifts mean much rearrangement of the family's 24-hour schedule. On the swing shift, which begins at 5:30 p.m. in one yard, some children have a heavy breakfast around 10 in the morning and a heavy meal between 3 and 4 in the afternoon. These children are not ready for a full supper at 6:30 p.m. Holding our kitchen open after 8:30 p.m. causes many difficulties in keeping help in the kitchen; since regulations prohibit split shifts for workers. So menus are planned which permit a light supper to some children and a heavier one to those who have eaten dinner 4 to 5 hours before. The children who eat a light supper are too hungry before their late morning breakfast; therefore we try to teach the parents what kind of foods a young child should eat at 2 a.m. through leaflets which we prepare and distribute to all parents. I must confess I was baffled the first time a mother asked

me whether she should feed her child at 2 a.m. Sometimes we have to consider the midnight meal as the child's supper, and the 3 to 4 hours sleep preceding as a long afternoon nap. In general, our young children have adjusted remarkably well to swing shift living.

PHYSICAL DEVELOPMENT PROGRAM

The job of the chief nutritionist consists not only in seeing that 8 different meals and in-between-meal feedings leave each kitchen every day; the children must show results in the development of good healthy bodies. Any child who shows poor muscle tone, an excess of soft fatty tissue, poor skin or mucous membrane color, etc., becomes our responsibility. Many of the children stay with us only 1 or 2 months. Our program, therefore, must show almost immediate results. Such criteria as failure to gain in height and weight are not evidenced speedily enough for our program: we must search for more quickly observed signs that all is not well.

The head nurse and the nutritionist work with the teacher, group supervisor, and mother to discover the causes of the individual difficulties. Often the child eats inadequately at the center and his hunger is then satisfied at home with candy, cake, and cookies. These children, we find, are in and out of the infirmary frequently or absent from the center because of upper respiratory infections. The mother is most easily reached when you tell her that you can help keep her child well if she will guard his diet more carefully, for she is on a war job and she does not want to be forced to stay home with a sick child.

These mothers who work 8 hours a day and care for a family are the busiest nursery school parents one can encounter. The individual parent conference may be a hurried one at any time of day from 6 a.m. to 7 p.m.: two or three attempts may have to be made in order to confer with the mother. Sometimes the teacher must be coached to drop three or four words a day to the mother as she dashes in and out of her unit. Any group conference with parents must be short and made to fit into a busy day. Groups of day shift parents may buy tray suppers and have their children fed at the center. Sometimes we offer the swing shift worker a cup of coffee and a cookie before she goes to work in exchange for half an hour of her time. Many fathers also come to these conferences.

The physical development program takes note also of the child who has hearing or sight difficulties or other physical handicaps. In a crowded community where medical facilities are over-taxed and where many families have but recently arrived and have no family physician, we must help get appointments for them.

HOME SERVICE FOOD

The sale of home service food to families was a part of the original plan for the child service centers. This has proved a boon to many busy parents. Each day we prepare one main dish and two other foods for the meal. Sometimes we prepare bread or rolls (usually a whole grain product or one containing some fruit) or there may be a dessert or a "reheatable" vegetable. Because we had so many requests, these menus now always include a salad. Ever since we began selling salads they have proved very popular. Casserole dishes are no longer used because they were not liked from the beginning. Fish dishes also had to be crossed off the menus. Solid meat dishes, hot breads, and fruits in desserts have been well liked.

If home service food is to help in our nutrition education program, foods must not be overloaded with calories at the expense of vitamins and minerals. The foods should never be those which the mother herself could have prepared in a few minutes. Her family is hungry for all the dishes she does not have time to cook. All home service food is ordered in advance since it is prepared for customers who are in a hurry and in kitchens almost overburdened with preparation of children's meals. When the customer arrives, she receives a labeled sack of food, which has been chilled before packaging for efficient carrying, and packed neatly in paper containers. Suggestions concerning other foods which may be prepared quickly at home to supplement the home service food are given to the customer when she orders the food. In each sack of prepared food are the same suggestions with directions for reheating the food.

CONCLUSION

During our 11 months of operation, it has been possible to adapt an institution-size foods service successfully to a nursery school program. We have been able to carry on an adequate feeding program through frequent discussions between teachers and the foods staff. In-service training in nutrition has been given to young teachers through group meetings, individual conferences, and open letters on nutrition topics. On the whole, parents have been unusually cooperative and appreciative, and many group meetings and individual conferences with parents have been held in spite of parents' busy schedules. All the children who have stayed with us over a period of time have acquired better food habits. Marked improvement has also been shown in the physical well-being of these children. We have been most gratified when visitors remark about the appearance of good health which the children present.

Health Education. Is health education still needed today? Evidence on this point floods the offices of the American Medical Association day by day in the form of letters from lay inquirers asking questions about their health. . . . We find the following questions, among hundreds of others: Why should not high school girls go on a diet? (Some of them should, but not according to their own notions.) Of what value is warm food in contrast to cold food? (At least one warm dish per meal is usually recommended.) Is dark bread as fattening as white bread? (Yes.) Knowing that movie stars have to be healthy, how do they reduce so fast? (Some have wrecked their health by reducing.) What is your advice regarding proper foods helpful to the eyes and to the teeth? (Not "foods," but diet as a whole, determines good nutrition.) Can activity of the thyroid gland be regulated by diet? (Aside from getting enough iodine, not by the patient, with safety.) Shall we eat between meals or before retiring? (Circumstances govern; usually the best answer is, 'not habitually'.) Please name one or two foods good for nerves and brain. (We named all good foods.) What are the best foods to keep one from getting cranky and irritable? (Sometimes we wish we knew!) Does steam pressure cooking really tend to preserve vitamin values? (Yes.) Does orange juice lose vitamin C overnight in the refrigerator? (If kept in a full container covered not enough to worry about.) Will plenty of salt in the diet be harmful at age 20? (Not likely unless there is kidney disease.) Does meat still have nutritional value after it has been cooked for several hours to make soup? (Yes.) . . . neither rich nor poor, prominent nor obscure, can be said as a class to be well-grounded in fundamental health knowledge. . . . A most cursory reading of our correspondence could lead to no other conclusion than that health education is necessary. More, it is sought after. . . . When we say that health education is still vitally needed, we can point with pride to what it has accomplished. There would have been little point in overcoming such infections as diphtheria, pneumonia, meningitis, and numerous others, if the knowledge had remained in the laboratory. Young mothers today take for granted knowledge about baby care and feeding which only a few received in the early decades of this century. Knowledge of nutrition, including the vitamins and minerals, despite their spectacular exploitation, has been spread through health education.—*W. W. Bauer, Director, Bureau of Health Education, American Medical Association, in Food & Nutrition News, October, 1944, published by National Live Stock and Meat Board, Chicago.*

THE NUTRITIVE VALUE OF CANNED FOODS

VII. Effect of Small-Scale Preparation on the Ascorbic Acid, Thiamin, and Riboflavin Content of Commercially-Canned Vegetables[1]

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In this investigation the effect of family-size preparation of canned vegetables on three water-soluble vitamins was studied, especially with a view to comparing the following two preparation procedures: Method A—the liquid was concentrated to from one half to one fourth its original volume, the solid portion added and allowed to heat, and combined liquid and solid served, as recommended to consumers by the Home Economics Departments of the National Canners Association and the Can Manufacturers Institute. Method B—the liquid and solid were heated together and only the solid served, according to the method commonly employed by housewives. As in the companion study on large-scale preparation (1), the vitamins determined were ascorbic acid, thiamin, and riboflavin. Carrots were prepared in duplicate only by the concentration method; spinach, by the method of discarding the heated liquid; the heated tomatoes were analyzed as a whole, though not concentrated. Of each of the remaining vegetables—green beans, Lima beans, corn, and peas—at least two different lots were prepared in duplicate both by the method of concentrating the liquid and by that of discarding it. Although a few of the vitamin values are missing in the last group of experiments because of occasional technical difficulties which made the results questionable, there is at least one pair of reliable determinations for each vitamin in each method of preparation.

TABLE 1

Preparation procedures—small-scale

Vegetable	Weights* before heating		Exp. no.	Method A—liquid concentrated					Method B—liquid discarded			
				Heating time			Weights after preparation		Heating time		Weights after preparation	
	Average solid	Average liquid		To concentrate liquid	To bring liquid and solid to full boil	Total	Total	Drainable liquid left in product	To bring liquid and solid to full boil	Total	Solid	Liquid discarded from product
	gm.	*gm.*		*min.*	*min.*	*min.*	*gm.*		*min.*	*min.*	*gm.*	*gm.*
Beans, green, cut, I	360	224	1	—	—	—	—	—	9.08	9.58	304	204
			2	—	—	—	—	—	9	9.5	305	189
Beans, green, cut, II	A) 390	193	1	12.5	3.5	16.5	437	97 g.	11.5	12	341	173
	B) 377	208	2	12.5	3.5	16.5	451	97 g.	12	12.5	320	195
Beans, green, cut, III	372	216	1	13	3.5	17	419	None	8.75	9.25	316	218
			2	8	4	12.5	474	88 g.	8.75	9.25	339	191
Beans, Lima, green, I	A) 433	159	1	5	5.5	11	495	None	7.67	8.17	358	170
	B) 403	187	2	6	5.5	12	498	None	8.17	8.67	350	161
Beans, Lima, green, II	401	181	1	13.5	3.5	17.5	442	None	9	9.5	383	150
			2	13	3.5	17	450	None	9	9.5	378	143
Carrots	378	216	1	15	3.5	19	424	26 g.	—	—	—	—
			2	15	4	19.5	433	47 g.	—	—	—	—
Corn, yellow, whole kernel, I	392	201	1	16	3.5	20	461	62 g.	8.5	9	343	187
			2	14	4	18.5	453	54 g.	9	9.5	367	175
Corn, yellow, whole kernel, II	419	172	1	8.75	3.75	13	495	69 g.	8.5	9	395	151
			2	8.5	4	13	497	68 g.	8.5	9	365	176
Peas, sweet, wrinkled varieties, I	397	202	1	9	3.75	13.25	499	(Estimated) ½ cup	12	12.5	341	165
			2	10	3.75	14.25	476	½ cup	12	12.5	343	162
Peas, sweet, wrinkled varieties, II	384	208	1	9	3	12.5	451	(Estimated) ¼ cup	8.5	9	350	186
			2	9	4	13.5	427	¼ cup	8.5	9	354	194
Spinach, I	552	231	1	—	—	—	—	—	9	9.5	520	237
			2	—	—	—	—	—	9	9.5	530	214
Spinach, II	439	362	1	—	—	—	—	—	10	10.5	435	316
			2	—	—	—	—	—	10.25	10.75	415	330
Tomatoes	(Whole) 586		1	(Whole to full boil) 9.25		9.75	559	—	—	—	—	—
			2	9.25		9.75	560	—	—	—	—	—

* Where there was a variation greater than 6 gm. in the weight of either the solid or liquid portion used in the two methods of preparation, both weights are given, "A" for Method A and "B" for Method B.

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EXPERIMENTAL METHODS

Preparation Procedures. The method of separation of the solid and liquid portions from the 3 to 6 cans of each lot of vegetables used in this study, as well as the sampling of these portions for analyses before heating, has been described in a previous publication (2). The weights of solid and liquid of each product reconstituted for duplicate heatings of single No. 2 or No. 2½ cans and other pertinent data on the cooking procedures are given in Table 1. A few explanatory comments follow:

All heating was done on a 3½-in. gas-burner, using uncovered 2½-qt. new enameled saucepans.

in both cooking methods and, if necessary, to vary the gas flame to accomplish this. For the concentration method, a period of 3½ to 4 min. after adding the solid portion to the hot concentrated liquid was adopted, and for the method of heating the contents of the whole can at once, a period of 8½ to 9 min. In both methods boiling was continued 30 sec. longer. In the former method the period of heating the liquid for concentration was necessarily variable, depending on the amount of the total liquid and the degree of concentration in each instance, as well as on the size of gas flame and radiation conditions, even though the latter two were kept as constant as possible.

TABLE 2

*Ascorbic acid concentrations and percentage retentions in two types of small-scale preparation of canned vegetables**

VEGETABLE	EXP. NO.	CONCENTRATIONS						PERCENTAGE RETENTIONS	
		Method A, liquid concentrated			Method B, liquid discarded			Method A, liquid concentrated	Method B, liquid discarded
		Initial		Final	Initial		Final		
		Solid	Liquid		Solid	Liquid			
		mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%	%
Beans, green, cut, II	1	4.8	4.8	5.1	5.7	5.8	5.6	80	58
	2			4.7			5.1	75	49
Beans, green, cut, III	1	5.7	6.1	7.7	5.5	5.5	4.4	94	43
	2			5.7			4.4	80	47
Beans, Lima, green, II	1	5.5	10.4	5.9	6.3	10.2	4.6	63	41
	2			5.5			4.3	60	37
Carrots	1	2.2	2.0	1.1	—	—	—	38	—
	2			1.3			—	44	—
Corn, yellow, whole kernel, I	1	3.5	6.0	2.7	4.9	6.6	3.2	48	33
	2			2.8			2.9	49	33
Corn, yellow, whole kernel, II	1	6.4	8.3	4.4	6.0	7.8	3.6	53	37
	2			3.9			4.0	48	38
Peas, sweet, wrinkled varieties, I	1	8.7	11.1	6.6	10.4	11.6	3.8	57	20
	2			—			—	—	—
Peas, sweet, wrinkled varieties, II	1	8.8	9.2	6.0	8.0	—	4.4	51	32**
	2			5.6			5.3	46	39**
Spinach, I	1	—	—	—	5.6	6.2	3.5	—	41
	2			—			3.7	—	44
Spinach, II	1	—	—	—	6.3	6.1	4.0	—	35
	2			—			4.0	—	33
Tomatoes	1	15.5		15.6	—	—	—	96	
	2			15.8			—	97	

* For carrots and tomatoes, six No. 2 cans were mixed before compositing single can amounts which were heated; for spinach, six No. 2½ cans, and for all other vegetables, three No. 2 cans.

** Since the ascorbic acid value for liquid before heating was missing in this sample, these retention figures were calculated on the assumption that the ascorbic acid value was the same as that determined for the liquid of the other three-can lot of identical pack.

In Method A (liquid concentrated) attempts were made at first to estimate the degree of concentration of the liquid visually, as might be done by the housewife, but the results were disappointingly inconsistent as to the amounts of drainable liquids left after the whole product had been heated: for example, in Lima beans I, peas I, and peas II in Table 1. Therefore, in the rest of the experiments it was decided to concentrate the liquid to one third or one fourth its original volume as determined by rapid and rough weighing of the hot cooking pan and liquid. This method gave more consistent results.

Also an attempt had been made in these first three sets of experiments to standardize the size of the gas flame and therefore one factor which would determine the total time of heating, but it was afterwards decided to standardize instead the time of bringing the product to a full boil

Sampling for Analysis.

Method A (liquid concentrated): The boiled products were quickly cooled to about 20°C. by immersion of the cooking pan in an ice bath. Because in many of the products there was sufficient liquid remaining to make sampling difficult without first draining off the liquid, this latter procedure was decided upon after the first three experiments had been completed. The drainage was carried out for 1 min. on a 12-in. monel metal standard drained solids sieve. Table 1 shows the weights of such liquids as were drained off. Two approximately equal samples, one for ascorbic acid determination, and one for thiamin and riboflavin determination, were then reconstituted in the tared Waring Blendor cups, and blended for 1 min. with weighed amounts of the appropriate protective acids.

Method B (liquid discarded): The boiled products were drained for 1 min. on the 12-in. sieve and the solid portion cooled in an ice bath to approximately 20°C., and then distributed into two Waring Blendor cups as samples of approximately equal weight for ascorbic acid and for thiamin and riboflavin determinations, and blended with acids as stated for Method A.

For both methods further treatments of the weighed aliquots of blends were exactly as described for unheated solid (2) and for products of large-scale cooking (1), and the chemical methods of analyses employed for all three vitamins were also the same as those previously summarized (1, 2).

DISCUSSION OF RESULTS

The individual values on solids and liquids before heating (Tables 2–4) are averages of duplicate determinations and are the same as those making up the complete averages reported elsewhere (2). The variations between separate 3-can lots of identical pack are also summarized there.

Ascorbic Acid Retention. As was true for the large-scale preparation (1), the retention of ascorbic acid was much more variable than that of the other two vitamins (Table 2). Tomatoes, here as there, showed no loss of ascorbic acid at all. The heating period in small-scale preparation was only about one ninth that of the large-scale (1). In general, the heating periods in the small-scale concentration (Method A) were about one fifth as long as in large-scale preparations. In this method, with no liquid discarded, ascorbic acid of green beans held up second best and did decidedly better than in the longer, large-scale heating. However, among four small-quantity

TABLE 3

*Thiamin concentrations and percentage retentions in two types of small-scale preparation of canned vegetables**

VEGETABLE	EXP. NO.	CONCENTRATIONS						PERCENTAGE RETENTIONS	
		Method A, liquid concentrated			Method B, liquid discarded			Method A, liquid concentrated	Method B, liquid discarded
		Initial		Final	Initial		Final		
		Solid	Liquid		Solid	Liquid			
		mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 mg.*	*mg./100 gm.*	%	%
Beans, green, cut, I	1	—	—	—	0.032	0.029	0.034	—	56
	2			—			0.032	—	54
Beans, green, cut, II	1	0.037	0.039	0.050	0.038	0.038	0.042	99	64
	2			0.049			0.041	100	59
Beans, green, cut, III	1	0.039	0.027	0.047	0.035	0.028	0.037	96	62
	2			0.042			0.039	98	69
Beans, Lima, green, I	1	0.030	0.029	0.036	0.029	0.036	0.032	101	61
	2			0.035			0.029	99	56
Beans, Lima, green, II	1	0.026	0.029	0.033	0.026	0.027	0.026	93	66
	2			0.033			0.026	94	65
Carrots	1	0.022	0.020	0.027	—	—	—	91	—
	2			0.029			—	100	—
Corn, yellow, whole kernel, I	1	0.034	0.035	0.039	0.036	0.038	0.037	89	58
	2			0.042			0.039	93	66
Corn, yellow, whole kernel, II	1	0.031	0.034	0.036	—	—	—	95	—
	2			0.035			—	92	—
Peas, sweet, wrinkled varieties, I	1	0.127	0.122	0.158	0.127	0.142	0.147	104	64
	2			0.170			0.146	108	63
Peas, sweet, wrinkled varieties, II	1	0.115	0.110	0.141	0.112	0.110	—	95	—
	2			0.146			0.118	93	63
Spinach, I	1	—	—	—	0.013	0.014	0.015	—	74
	2			—			0.014	—	70
Tomatoes	1	0.054		0.061	—	—	—	108	
	2			0.060			—	106	

* *See* first footnote to Table 2. For carrots and tomatoes, six No. 2 cans were mixed before compositing single can amounts which were heated; for spinach, six No. 2½ cans, and for all other vegetables, three No. 2 cans.

In this group of assays, more than three fourths of the duplicate determinations of any of the three vitamins made on two aliquots of one blend agreed to within 5 per cent; all the rest, except two pairs of very low ascorbic acid values, one of low thiamin, and three of riboflavin, were within 10 per cent agreement. None of the exceptions were over 14 per cent apart. Hence it is felt that in general the average concentration values in Tables 2–4 are safely within an accuracy of ±5 per cent and the retention values which involve three separate assay values (except tomatoes, two) should in general be safely under ±10 per cent experimental error. Theoretically, of course, assay errors could occasionally add up to 15 per cent in these percentage retention figures. Interpretation of retention values should take account of these experimental limitations.

determinations on green beans, showing 75 to 94 per cent retentions, the higher retentions do not correlate well with the shorter heating periods. In the large-scale preparation (1), ascorbic acid of spinach held up better than that in green beans, but in the small-scale experiments spinach was not prepared by the concentration method and therefore it is difficult to judge its ascorbic acid destruction since in method B (liquid discarded) the original liquid weights in the can and the further extraction of liquid from the solid portion during heating are complicating factors. As for the rest of the vegetables prepared so that all liquid was retained (Method A), the retentions ranged downward from about 60 to 40 per cent but were generally slightly higher than in the large-scale heatings.

It is also interesting to note that in spite of the fact that there was greater chance for destruction of ascorbic acid

during the somewhat longer heating periods needed to concentrate the liquid in Method A, nevertheless for those products prepared both ways the final retentions were generally 15 to 30 per cent better than in Method B where the liquid was discarded.

Thiamin and Riboflavin Retentions. As in the large-scale preparations, there was no definite loss either of thiamin or riboflavin (Tables 3 and 4) when all the liquid was retained, even though it was boiled for a considerable length of time for concentration (Method A). When all the liquids were drained off, the thiamin retentions ranged from about 55 to 70 per cent of the original totals; the canned vegetables for serving: one in which the liquid in the can was concentrated and retained; the other in which liquid was drained off after heating. The canned products studied were green beans, Lima beans, carrots, yellow corn, peas, spinach, and tomatoes.

With assay errors being in general less than ±5 per cent, variations in the percentage retention values, as calculated from three separate assays, are generally significant above ±10 per cent.

Conclusions made regarding vitamin retentions are as follows: Ascorbic acid loss was variable in the preparations in which liquids were concentrated, *i.e.*, from around 20

TABLE 4

*Riboflavin concentrations and percentage retentions in two types of small-scale preparation of canned vegetables**

VEGETABLE	EXP. NO.	CONCENTRATIONS						PERCENTAGE RETENTIONS	
		Method A, liquid concentrated			Method B, liquid discarded			Method A, liquid concentrated	Method B, liquid discarded
		Initial		Final	Initial		Final		
		Solid	Liquid		Solid	Liquid			
		mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%	%
Beans, green, cut, I	1	—	—	—	0.047	0.030	0.050	—	64
	2			—			0.048	—	63
Beans, green, cut, II	1	0.055	0.033	0.065	0.058	0.031	0.059	102	71
	2			0.065			0.055	105	62
Beans, green, cut, III	1	0.051	0.028	0.061	0.058	0.030	0.056	101	63
	2			0.053			0.056	100	68
Beans, Lima, green, I	1	0.059	0.043	0.062	0.059	0.043	0.064	95	71
	2			0.061			0.063	95	70
Beans, Lima, green, II	1	0.049	0.033	0.053	0.049	0.036	0.049	91	72
	2			0.053			0.051	92	74
Carrots	1	0.021	0.013	0.026	—	—	—	102	—
	2			0.026			—	104	—
Corn, yellow, whole kernel, I	1	0.062	0.035	0.066	0.063	0.037	0.057	97	61
	2			0.068			0.057	98	65
Peas, sweet, wrinkled varieties, I	1	0.073	0.063	0.086	0.073	0.060	0.077	102	64
	2			0.084			0.079	97	65
Peas, sweet, wrinkled varieties, II	1	0.058	0.049	0.078	0.055	0.043	0.056	108	65
	2			0.078			0.057	103	67
Spinach, I	1	—	—	—	0.093	0.048	0.084	—	83
	2			—			0.070	—	71
Spinach, II	1	—	—	—	0.066	0.036	0.058	—	60
	2			—			0.061	—	60
Tomatoes	1	0.023		0.024	—	—	—	100	
	2			0.024			—	100	

* *See* first footnote to Table 2.

riboflavin, from 60 to 75 per cent. In this method of preparation the individual retentions were often somewhat lower than the original thiamin and riboflavin contents of the unheated solids. This is reflected in a comparison of the above retention ranges with the ranges of vitamin contents in the solids (2): 62 to 72 per cent for thiamin; 70 to 80 per cent for riboflavin. In every case such additional losses of these vitamins above the original liquid content were explainable by a further loss of liquid from the solid portion during heating.

SUMMARY

Retentions of ascorbic acid, thiamin, and riboflavin were determined in two types of small-scale preparations of per cent in green beans to about 60 per cent in carrots. But for each vegetable prepared by both methods, the total loss was decidedly greater when the liquid was discarded. There was no loss of ascorbic acid in tomatoes for which all of the liquid was retained but not concentrated.

No thiamin or riboflavin was lost by destruction in either method, but approximately 30 to 40 per cent of these two vitamins was lost when liquids were discarded.

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NUTRITION IN BRAZIL

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I CANNOT understand how any nutrition study can be undertaken without first studying the climate and the people: the climate because we must know the needs of the people living in the region or country to be studied, and the people because we must know their background and therefore their habits.

When North Americans think about Brazil, they generally think of snakes, jungles, malaria, Negroes, Indians, the harbor of Rio de Janeiro, coffee, rubber, Brazil nuts, and so on. If you limit yourself to this, you will share a very common misconception. The land is vast, comprising an area greater than the continental United States of America (the United states has 3,022,400 sq. mi.—Brazil, 3,275,500 sq. mi.); in fact, Brazil covers nearly half the surface of South America and has approximately 45,000,000 inhabitants. It is drained by a giant river system which runs through the most savage jungle on earth to the coastal region where there is a high cultural level. Rio de Janeiro and São Paulo are large, modern cities which were in existence as cities more than 50 years before the arrival of the Pilgrims in Massachusetts Bay.

Situated almost entirely in the Southern Hemisphere, Brazil, with its plains and mountains and varied coastline, is endowed with a surprising diversity of climatic conditions, but there are none which might be called extreme. There are two climatic regions: the tropical and the temperate, in which the average temperature does not exceed a range of 53 to 82°F., since the country is not cut by the "thermic equator."

At the time of its discovery in 1500, Brazil had a population of about 3,000,000 Indians, living in what is known as the polished stone age—a nomadic people, generally speaking, engaged in fishing, hunting, and gathering fruits. However, the basic origin, other than Indian, of the Brazilian people of today is Portuguese, blended with Italian, Spanish, Japanese, German, Dutch, African, and Polish blood. Except for the 200,000 Japanese lately arrived, who in their usual fashion have remained apart from the nation, these foreign strains have become solidly intermingled and the immigrants have identified themselves as Brazilians. Only certain of the national and racial peculiarities, mainly dietary habits, have carried over.

BRAZILIAN FOOD HABITS

To facilitate an understanding of Brazilian food habits and the nutritional status of the Brazilian people, we must divide the country, as J. de Castro does, into five regions, each with characteristic soil and climatic conditions (humidity, temperature, altitude, etc.). As a result of man's ability to adapt his needs to the food which a region produces, the food patterns show definite differences according to geographic variations. The five regions are:

(1) The Amazon Basin with its hot, humid climate and huge forests. The basic foods here are manioc meal, beans, Brazil nuts, powdered or condensed milk, game, fish.

(2) The Northeastern Coast with its dry climate. Its main foods are dried salted meat, beans, manioc root and meal, and fruits (papayas, pineapples, oranges, and so on).

(3) The Northeastern Central Highlands, with a very dry climate and therefore semi-arid. The basic foods are goat's milk and meat, dried salted meat, beans, corn, and molasses.

(4) The Central Hills, including the Paraguay and Paraná basins where the climate is temperate. Cattle and pigs are raised, and the main foods are beef and pork, cheese (Minas cheese, a kind of cottage cheese, commonly consumed in large quantities), beans, corn, rice, vegetables, and fruits (mainly oranges, bananas, and mangoes).

(5) The Southern Hills, comprising the states of São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul, where the climate is temperate and agriculture and industry are highly developed. Basic foods are beef, beans, manioc root and meal, cheese, milk, vegetables, and fruits.

Judged by present standards, nutritional inadequacy is marked throughout the whole country, but mainly in the first-mentioned three regions where the prevalence of illiteracy and low wages contribute to malnutrition.

There are some facts, I think, that are important to know in order to understand our nutrition problem.

Campaigns to better the Brazilian food habits do not meet with great success, and they are very difficult to promote because we do not have much evidence of acute nutritional deficiencies. Acute cases can serve to demonstrate the importance of food in maintaining health, and the benefits to be derived through observing the rules which are based on the science of nutrition. On the other hand, we do have hundreds and hundreds of cases of subclinical deficiencies, in which improvement in the diet does not yield spectacular results. That this situation exists is shown chiefly by decreased resistance to infections. For example, tuberculosis is common, and we can call this disease, as Escudero does, a nutritional disease, because we believe it is sequential to a lowered nutritional status.

In some regions the common daily diet consists of less than 1700 calories, and it is difficult to explain how the people manage to live and work as they do. A mild protein deficiency is prevalent in the diets of the people in the Northeastern Highlands, also a deficiency of minerals and vitamins.

The Brazilian is a large consumer of animal fats. It is an almost universal habit to cook with lard. Only in a few places are vegetable oils used and then only in particular dishes. In some regions the people use vegetable oils—buriti (palm) and dendê oil. These oils are very rich in carotene, which is unusual, since only animal oils as a rule, are rich in carotene. Some people of this region have a peculiar color on the palm of the hands, on the scleras and mucosas in general, called aurantiasis (a golden yellow discoloration of the skin) or carotenemia—a very inaccurate term. Sometimes this color is so deep that it is confused with jaundice.

In Brazil we have practically no rickets, which is to be expected since Brazil is very sunny.

Goiter is quite common in the Central Hills; it is related not only to the American trypanosomiasis, but also to iodine deficiency. The use of iodine as a prophylactic might be more widely practiced. In some places, for instance, the states of São Paulo and Minas Gerais, the incidence of goiter among elementary school boys and girls was found to be 33.5 and 49.9 per cent, respectively.

The hypochromic microcytic form of iron deficiency anemia is also very common in almost all the states of Brazil, except the southern states where the people eat a great deal of meat.

It is undeniable that the milk consumption of the Brazilian people should be increased, for it is only about 86 liters per capita per year, or 240 gm. per day. There are regions where this rate is considerably higher; for instance, in the state of Minas Gerais the rate reaches 405 gm. per capita per day. However, in the state of Rio Grande do Sul, the rate is only 232 gm., in the city of Rio de Janeiro, 225; in São Paulo, 208; and in Pernambuco, 196 gm. per capita per day. In the interior the problem is harder to solve because of inadequate transportation and lack of refrigeration facilities. Only the large centers of population enjoy modern supply services (pasteurizing), and in the greater part of the country the people still drink raw milk obtained nearby.

The butter consumption of the Brazilian people is nearly 1 kg. per capita per year, which is low if we compare it with that of Canada or New Zealand where each person consumes 14 kg., or with the United States which has a rate higher than 7 kg. per capita per year. Notwithstanding, butter is consumed in all the regions of Brazil. Margarine is used only in the northeastern states of Brazil.

The Brazilian cheese industry, of course, is influenced by the extent of milk production and consumption. In a country like mine, where transportation facilities are still inadequate and where it takes days instead of hours to traverse the great distances, the distribution of milk becomes difficult and cheese is largely substituted for milk in the diet. The amount used approximates that of butter.

Brazilian nuts are eaten in great quantities in the Amazon Basin where they are aptly nicknamed the "vegetable meat." They contain 17 per cent protein of good biological value, and are rich in other nutrients, namely: fat 67 per cent, calcium .176 per cent, iron .004 per cent, thiamin 1.1 mg. per cent, and they yield 679 calories per 100 gm. In the Amazon Basin they cost around 1 cent per kilogram.

Manioc meal is used a great deal, but unfortunately, judged by its composition, it contributes very little to the diet. The manioc root is rich in starch, but to make the meal the root is pulverized and its starch extracted with water. The remainder is then dried to make the manioc meal which consists almost entirely of cellulose and therefore its food value is practically nil.

In the state of São Paulo and in the city of Rio de Janeiro, the annual meat consumption per capita is calculated to be 49.5 kg., of which 41 kg. is beef. This is considerably less than the 121 kg. consumed in Argentina, 104 in New Zealand, 92 in Australia, and 60 in England and Denmark, but even so it is much greater than that in many European countries. In the southern states of Brazil the amount of meat used is two or three times greater than in Rio de Janeiro and São Paulo, while in the northeastern and northern states it is less.

Fish is another widely used food. We have vast fisheries and, as is natural in an area with tropical seas and rivers, a large variety of fish is found. Instead of 20 species, commonly seen in North American and European markets, the market of Rio de Janeiro alone offers as many as 167 varieties, not including shellfish.

Sugar, molasses, and cakes are consumed in large quantities; we generally use more sugar with coffee than is customary in North America. As a dessert, instead of pies we often eat fruits preserved in a very sweet juice, or as marmalade and served with any kind of cheese.

Probably one of the most important and essential dietary substances in tropical countries is common table salt, which we use in liberal amounts because of the heat.

NUTRITION STUDIES

Now a few words about the studies which are being conducted in my country: We are studying the chemical nature of our foods and the nutritional requirements of our people, and making surveys to determine their nutritional status. Many studies have been made at the University of São Paulo on the nutritional value of our foods. The Brazilian Department of Public Health has made and is making nutrition surveys. In the state of São Paulo where the relation between vitamin B_1 and megacolon is being studied it has been noted that megacolon is found in some regions of this state where the civilization is ancient and the food habits poor, and not in those areas where the foods usually eaten are rich in thiamin. The improvement of these patients on the administration of thiamin has been commonly observed.

The Brazilian soldier on field rations receives a diet of 4500 calories per day, which includes adequate quantities of all the other dietary essentials. This is a very high level if we consider the average stature of the Brazilian. The Brazilian Army has divided the whole national territory into two zones: the South, where there is a great difference between the cold and the hot season, which led the Brazilian Army to devise diets suitable for each of these seasons; and in the North, where there are no great differences of temperature between the two seasons and no need of such measures.

PLANS AND ACCOMPLISHMENTS OF THE NUTRITION PROGRAM

Malnutrition of varying degrees, but mainly in the subclinical zone, is prevalent in Brazil. To quote Thalino Botelho: "In Brazil there are those who eat too much; there are those who do not eat enough; only very few eat well." J. de Castro, speaking of the nutritional status of the people of the northeastern states, remarked: "How is it possible to eat so and not to die of starvation?" However, since the science of nutrition in Brazil is still in the early stages of growth and development, we have much to learn and accomplish. The compulsory enrichment of all white flour would be a very important step in improving the dietary status and I believe it should be done at once.

We also have great need of medical centers established in various zones of the country, directed by specialists in nutrition. Nevertheless, we have accomplished some very worthwhile tasks. For instance, we have a law which requires any factory with more than 500 employees to operate a restaurant for them. The restaurant follows the plans formulated by a central institute which specializes in the nutrition of collectivities. Generally only one meal is served, the noon meal, which costs 7 cents and consists of 1700 calories and includes all the essentials of a well-balanced diet. At the same time, the advantage of drinking more milk is pointed out, as well as the disadvantages of eating chiefly manioc meal and of other poor food habits. The school lunch is also receiving our attention and we hope to have the same good results experienced by other countries in this venture. Unfortunately the problem of the proper care of the pregnant woman has not been given the serious consideration it deserves.

The Brazilian Department of Agriculture is very much interested in conditioning the production of food to the needs of the country and it is anticipated that the efforts in this direction will contribute toward improving the nutrition of the population.

Even though we know that the job ahead is tremendous, I hope and believe that we will win this fight against malnutrition, and with the help of science, agriculture, industry, and education, the Brazilian people will be well-nourished as befits the vast resources of their country.

THE UNITED NATIONS INTERIM COMMISSION ON FOOD AND AGRICULTURE[1]

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SOME five centuries ago a great ecclesiastic, Thomas a Kempis, made a very profound observation. "All men love peace," he said, "but very few love the things that make for peace." It is an observation which I think is worth repeating to ourselves again and again in the days ahead as we start to reconstruct our world from the ruins of the most devastating war in history. It tells us in a few simple words where we must begin if the peace we hope to build is to endure. It tells us, in effect, that it is not enough simply to seek to prevent war; we must seek, rather, to prevent or correct all those things which predispose to war.

Hunger—the want of food—is undeniably one of those things, perhaps the most basic. It was in recognition of this fact that the United Nations Conference on Food and Agriculture met at Hot Springs, Virginia, in May of last year. The Conference was called in the midst of war, at the invitation of our Government, to begin laying a rock-bottom foundation on which the formal structure of peace might be built when the war is finally over. It was in recognition of this fact, too, that the Interim Commission on Food and Agriculture continued the work which the Conference began. It is in further recognition of this fact that all of us who contributed some small part to the work of the Commission are hopeful that soon after Congress reconvenes it will give its approval to participation by the United States in a permanent Food and Agriculture Organization of the United Nations, and thus assure the peoples of the world that our love of peace is also a love of "the things that make for peace."

In this paper—since I am qualified to speak only as an economist and not as a nutritionist—I can hope to delineate only a few of the implications of this first step toward basic world peace as they affect the field of human nutrition. I shall try to do this by pointing out some of the roles which nutritionists will be expected to play in the work of the Food and Agriculture Organization of the United Nations, which I shall refer to hereafter as the FAO. I shall draw my analysis in great part from the "First Report to the Governments of the United Nations by the Interim Commission on Food and Agriculture," which includes as an appendix the proposed Constitution of the FAO.

ROLE OF THE SCIENTIST IN THE PROGRAM

One of the first effects of this type of approach is to reverse our customary thinking about the role of the scientist in matters mundane. We have heretofore, I think, placed undue emphasis on insulating the scientist—on letting the scientist work undisturbed in his laboratory or library, so that his findings might have that totally abstract quality we associate with "pure" science. And many scientists themselves have come to believe that their work is of most value to society when it is most pure in this sense.

The result has been that the relevance of many highly significant findings in science has had to be pointed out by someone else with a practical turn of mind who saw in the purely academic conclusions something of immediate human concern. In other words, the scientist has tended to be quite willing to let middlemen of some sort or other—manufacturers, advertisers, and the whole gamut of practicing professional people, including politicians—serve as his contacts with humanity. The scientist so often has held aloof, contenting himself with an occasional paper in some journal of highly restricted circulation.

The peace we hope to build invites the scientist out of his laboratory and library. It asks him to insist that his knowledge be given direct application to human welfare. And one of the most hopeful signs that came out of the Hot Springs Conference was that there the scientists did speak up, and that they continued speaking through the Interim Commission. One got the impression quite distinctly that the proposed FAO was not to be just another formal international organization which would yield to the winds of political change but an organization in which active scientists in all fields associated with nutrition and agriculture could help to bring to all mankind the available contributions of scientific knowledge to human betterment.

"It is time," one could almost hear them saying, "that the scientist in whatever field step out of his shell, whether that shell be his laboratory, his college, his federal department, or the national boundaries of his country. We know enough of what needs to be known to help lay the foundations for a strong and enduring peace. The people themselves must build this peace, but the knowledge that only we can provide them will help them build this peace better. It is our duty, then, to see that such knowledge reaches them."

This temper of thinking is reflected in the Interim Commission's "First Report to the Governments of the United Nations." "In the struggle for food," the report states, "mankind has been indifferently successful. If millions have enough, more millions have too little, and many starve. This has been thought to be inevitable, but we now know that it is not. Recent discoveries and developments have made it possible under certain conditions for all men and all nations to achieve freedom from hunger, which is the first step toward freedom from want. Indeed, we can now expect to do much more than be free from hunger. The way is open to move toward new levels of well-being which men have hitherto thought unattainable."[2]

And a little farther along in the report one comes across this invitation to science to assume its new role:[3]

> A new mastery over the forces that determine human well-being is possible, which men and nations can exercise, if they will, to better the lot of the vast majority of people. But to put this knowledge to full use requires forethought and action adequate to the ends desired.
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> The modern knowledge of nutrition must be shared, in simple practical terms, among increasing numbers of people until it finally reaches all. The modern knowledge of production must be shared among the world's farmers. Producers must be enabled to get the materials and tools, and to apply the methods, necessary to increase the world's production to the point where all can have enough food. Those released from agriculture by its increased efficiency must be enabled to find useful work in other pursuits. Workers in cities and towns must be enabled to get the products they need from an expanding agricultural production; that is to say, industry and other forms of production, as well as the domestic and foreign trade of all countries, must likewise expand. Each nation must give earnest consideration to the adoption of policies designed to insure sufficient food to those who, for one reason or another, are at so great a disadvantage in the economic system that they cannot obtain the means for reasonable nutrition. Finally, research, which has already accomplished so much, must be stimulated and made even more responsive to the need of discovering ways of reconciling the changing numbers of the world's peoples and the quantity of things produced and distributed to meet their requirements.

[1] The full text of this and the three papers immediately following (which appear in this JOURNAL only in part) was read before the American Dietetic Association, Chicago, October 25, 1944.

[2] First Report to the Governments of the United Nations by the Interim Commission on Food and Agriculture. Interim Commission, August 1944, page 9.

[3] *Ibid.* Page 10.

This seems to me to be not an invitation to take the direction of human affairs out of the hands of the statesmen and politicians, but an invitation to the scientists who are concerned with human nutrition and the production and distribution of food to give the statesmen and politicians a direct collaboration which heretofore has been lacking or inadequate. Whereas our emphasis has been to keep politics out of science, our aim now must be to put enough science into politics to make sure that the political structures we build rest on the strongest possible foundations.

THE WORK OF THE NUTRITIONIST

The next effect of our concern with "the things that make for peace" follows directly from the first: It expands tremendously the field of work of all those who are concerned with human nutrition. The four walls of the scientific laboratory now are to be expanded as far as possible to the four corners of the earth. And this is true not only of laboratory research as such but of the increasingly important task of bringing the results of that research to the areas where it is most needed.

"One of the principal functions of the Organization," the Interim Commission states, "will be to promote research in the fields relating to its work as a means of meeting the needs and helping to solve the problems of the peoples of its member nations,"[4] and then adds: "The need to make useful facts about nutrition and the consumption and production of foods far more widely known is so great and so essential to progress that promoting the dissemination of knowledge is to be given equal emphasis with research."[5]

For the new science of nutrition this seems to me to open up opportunities that are almost unlimited. There is not only the task of intensifying research in fields where we have only scratched the surface so far, but also the task of carrying the results and practical application of this research throughout the world. I believe the importance of both phases of this work can hardly be overstated.

Here again it is a matter of probing through the evidences of malnutrition to the actual causes of it, just as in seeking to establish peace we have decided that we must probe through to the things that make for peace. Where, in the field of human nutrition, that search will lead us I am not qualified to predict, but it seems to me to be obvious that it must lead us to a much better understanding than we have today not only of the nature of food in its relation to the chemistry of food but also of the nature of soils and many other factors in their relation to the chemistry of food. Once possessed of this understanding we should make rapid progress in eliminating the causes of the human nutritional deficiencies which have plagued us for centuries, and which today we can attack only after the symptoms are obvious and alarming.

In one sense it is surprising that we have waited so long to reach this point in the development of the sciences related to nutrition. Food has always been one of our most elemental concerns. Yet, on the other hand, it is not at all surprising that in a world where there never was enough food of whatever kind or quality man's primary concern should have been with its production in bulk and with the extension of the areas of production rather than with an understanding of its qualitative effect on his biological processes.

Today, thanks to the foreshortened world in which we live as a result of our amazing advances in communication and transport, the extension of areas of agricultural production is of much decreased significance. Wherever food is produced, its remotest world market will be only days away at most in our postwar world. Primary emphasis is necessarily shifted from a search for new areas of production to a search for more efficient utilization of the land and food resources already available.

The ramifications of this change in emphasis are such as are bound to make themselves felt in every field of food research, beginning with research in soils and fertilizers and seeds and going on through processing and marketing to the actual kitchen preparation of the food for eating.

PLAN OF ORGANIZATION OF PROPOSED FAO

The Interim Commission thus has conceived of the work of the FAO in the broadest possible terms. Moreover, it has proposed a formal organization well adapted to meet these broad purposes. Work of such magnitude —which must eventually reach into the everyday lives of all people in all nations—cannot devolve on a few people in a central organization, no matter how able they may be. The best that any central organization can do under such circumstances is to help people to help themselves, and it is on this basis that the proposed FAO has been conceived.

Paul H. Appleby, member of the Interim Commission for the United States, has recently summarized the general structure and function of the FAO in these words:[6]

> The general organization provided for in the Constitution contemplates a governing Conference comprising representatives of all the member nations, with an Executive Committee of from nine to fifteen freely chosen by the Conference. It includes a principal administrative officer, the Director General, aided by a technical, international staff working under his leadership. The charter provides for a process of amendment which insures that the powers of the organization with respect to any nation cannot be enlarged except with the consent of that nation. . . . The Constitution authorizes the calling of conferences of all kinds of groups interested in food and agriculture—farmers, scientists, nutritionists, handlers and processors of agricultural products. It authorizes similar activities in the fields of forestry, fisheries, and non-food agricultural products. It authorizes the sending of missions to make special studies that may be desired by the various countries. It provides for periodic reports from member governments showing progress made in productive efficiency and in raising standards of nutrition.
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> The budget for the first year is set at $2,500,000—of which the share of the United States would be $625,000. The report indicates that in subsequent years the budget will be about twice that much.
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> By express provision in the Constitution, each member nation will have one vote. All nations will be on an equal basis. The Great Powers do not even have assured places on the Executive Committee. Ordinarily, questions will be decided by simple majority vote. On more important matters, a two-thirds vote is required. . .
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> One of the very early functions of the FAO will be to stimulate among member countries the exchange of technical experts and students interested in becoming proficient in these fields. For a long time we shall need a steadily increasing number of persons technically equipped to aid in the improvement of agriculture and nutrition.

What is apparent from this statement as well as from the "First Report to the Governments of the United Nations" is the absence of any compulsion on any nation except as it is self-imposed. The organization seeks primarily to make available effective means for self-help and to ensure the continued collaboration of all the member nations to this end.

IMPLICATIONS IN THE FIELD OF ECONOMICS

I realize, as I am sure you do, that any major advance in human nutrition is likely to have significant economic consequences. In fact, I believe I may safely say that advances in human nutrition have been delayed to some extent because of their economic implications. Changes in food consumption habits mean changes in customary patterns of food production which are likely to be resisted

[4] *Ibid.* Page 12.
[5] *Ibid.* Page 14.
[6] Address at the University of Chicago, September 7, 1944.

not only by agricultural producers but also by all those whose function it is to process and distribute the products of the farm.

Here again, however, as in our approach to the entire problem of building an enduring peace, the danger lies not in the change—which is necessary and inescapable—but in the resistance to change because it may affect adversely some local or temporary interest. A good part of our perennial economic difficulties in agriculture stem from such resistances, from our failure to recognize that a pattern of production and distribution which worked out successfully for our grandfathers may not work out at all for ourselves.

Dr. F. F. Elliott[7] has outlined very clearly the problems in production and distribution which the FAO and each of the member nations must face if they are to succeed in attaining their objectives:

> Having ascertained the consumption needs and the shifts in diets that will be needed to reach a desired nutrition level in the different countries, the first task will be to translate the consumption needs and minimum levels or goals of consumption agreed upon in the different countries into production terms. The next step will involve an analysis of the possibilities for expanding and reorienting production in each country to see to what extent the deficits in an individual country can be met by this means and the extent to which countries favorably situated to produce low-cost foods of high nutritive content can supply additional quantities of these to the peoples of other countries and thereby contribute to the betterment of nutrition and world trade. . . The final step in this phase of the problem would consist of working out recommended crop and livestock systems and the methods and techniques of production in the different countries which would most effectively contribute to these ends.

In addition to these important tasks, Dr. Elliott points out that "there remains the broad and difficult problem of processing, transporting, and getting into the stomachs of the peoples of the world both the quantities and qualities of food that are essential to the achievement of the goal of good nutrition."

[7] Redirecting world agricultural production and trade toward better nutrition, J. Farm Econ., Vol. 26, February 1944.

The prospective changes in our agricultural economy which this type of international collaboration may call for are huge in outline, but they seem to me to be altogether reasonable and altogether beneficial to the farmers of our nation. They point to a more efficient—and hence a more prosperous—agriculture everywhere. Two thirds of the world's people are still engaged in agriculture, and yet two thirds of the world's people are still inadequately fed. While the reasons for this may vary, inefficiencies in production and distribution may be held largely responsible. In a world where trade to all parts of the earth, near or far, is swift and easy, we still persist in producing locally with inefficient methods and insufficient tools and frequently on impoverished soils the agricultural products that might better be produced elsewhere. That is not good economics; that is not good nutrition.

We have persisted in doing so in the past because never before have we had the opportunity for effective collaboration in self-help which appears to be the only way through which a change can be brought about. It would be a tragic mistake not to avail ourselves of this opportunity. The problems ahead in agriculture will be extremely difficult, but the welfare of the farm people of the United States and of other countries of the world requires that we face them boldly. A haphazard, piecemeal approach, with each country seeking to solve alone in its own fashion the problems of the moment, is out of the question in a world as small as ours has become.

Our collaboration, moreover, must not be limited to food and agriculture. Fortunately, progress is already being made in this respect. The recommendations for an international monetary stabilization fund and an international bank which resulted from the recent Conference at Bretton Woods, and the conversations at Dumbarton Oaks concerning plans for effective collaboration for international security are encouraging signs. They are to me an indication that the peoples of the world are determined that the peace we build must be on the sure foundation of "the things that make for peace."

Ours is the Heritage of Abundance

What are soil resources? They are food and clothing locked up in Nature's warehouses against the time when man, through his efforts, takes them out and uses them. Our great soil resources in this country have enabled us to develop a great race of people. History shows that the character and strength of a nation always go up and down with its soil. . . .

H. H. Bennett, Chief of the Soil Conservation Service, who has spent more than an average lifetime in a study of the soils, is authority for the statement that we have ruined more land in less time than any other nation in history, and that more than 50 million acres of land in the United States, once cultivated and fertile, no longer produce crops. That was nearly as much as our entire wheat acreage last year. And the best topsoil has been washed away from an additional acreage more than twice as large as that. Fortunately, we are learning of this growing danger before it is too late. The soil conservation and soil building practices of the last few years have increased the acreage yields of our major crops by more than 20 per cent. . . .

What is known as the Mississippi Valley, and I mean by that the whole great area between the Alleghenies and the Rockies, is the greatest food-producing area on earth. It all forms one great integrated river system. Properly used, it can for centuries to come not only supply our own people, but can help supply others with its products and bring back in trade additional goods for us to use and enjoy.

In dealing with Nature's resources in any land and in any country, there is always a conserving use and a wasteful use. The choice lies with the people who control these resources. In the past we have exploited our good earth with a prodigal disregard of its value to our enduring life as a nation. We have sent the export crops down to the sea in ships and the soil down to the sea in mud. When the Mississippi overflowed toward its mouth we built levees. We tried to reverse Nature and when Nature fought back, as she always does under those conditions, we built even higher levees. Instead of using the water all along the line we tried to get it into the sea as fast as we could. . . .

But whatever is done, whatever plans we may make, or whatever genius we may possess, our nation must perish unless we take care of the soil. The soil is our natural heritage. Wisely used, its value, its life-giving strength, its productivity, are ageless.—*War Food Administrator Marvin Jones at a hearing of the House Special Committee on Postwar Economic Policy and Planning, August 25, 1944.*

The "Over-All" Field of Nutrition Research

In all research dealing with food supply, it is clear that the economic aspects cannot be neglected. Since malnutrition is most prevalent among low income groups, cheaper as well as more nutritious foods are called for. This means all possible economies in production and distribution. But broader aspects are involved, for it should also mean a consideration of the economics of land utilization and animal production and of the various industrial operations dealing with food. Food planning must take account of these considerations as well as of physiologic needs. Mistakes of the past two years have demonstrated this clearly.

In the development of new products better to meet physiologic requirements, food habits and consumer needs and preferences as to forms and kinds of food must be taken fully into account. This aspect cannot be neglected in any over-all nutrition program. The proper place of synthetic vitamins in the food economy of the future must be examined dispassionately with a consideration of all the factors involved.—*L. A. Maynard, Nutrition Reviews, May 1944.*

NUTRITION AND AGRICULTURE

M. L. WILSON

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IN THE past decade or two, as man learned more and more about the transcendent importance of good nutrition to good health, the nutritional import of food has become primary. It has become the core of agricultural planning underlying the type of program now under consideration by the Interim Commission. Now that nutrition and agriculture are being linked closer and closer, we should step up what has been and is being done in agricultural planning.

There are some immediate and long-time implications presented by nutrition knowledge which our agricultural statesmanship cannot dispose of lightly. This is true whether we think of the local rural community, or of the world agricultural community.

Looking forward to the years of peace, for instance, what would be the effect upon postwar agriculture, if every family having an income of less than $1,500 a year were to have the kind of diet which good nutrition demands? During the war our farmers have shown that they can supply the products needed for good nutrition in the total war effort. In the postwar years they will be faced with a comparable challenge to supply the foods needed for good nutrition and a commensurately higher standard of health than we have been able to enjoy in wartime or, for that matter, in the prewar period.

Another challenge presented by nutrition concerns farm people themselves. Farmers, in the past, in their drive for increased efficiency and commercialization, have tended to emphasize increased production for sale. Very often they neglected to grow for their own use—or to use when they did grow—some of the very foods vitally needed for a protective diet. An important objective of future agricultural programs should be the encouragement of farmers to grow crops that will enable their families to enjoy the balanced and adequate diets essential to good nutrition. Such wartime programs as Victory Gardens, bread and cereal enrichment, fortification of margarine, and other dietary and educational efforts have improved the situation in many rural areas of the country. We hope that these efforts will continue and will elicit the full support of public opinion.

Here are some of the specific challenges to agriculture presented by nutrition as we approach the closing stages of the first important phase of the war:

First, it is probable that the long-time trend will be in the direction of producing more of the protective foods. Speaking strictly from the standpoint of nutrition, it is recognized that a balanced diet could be had by a shift to more cereals and direct products. The trend, however, has been in the opposite direction. Popular appetites in this country have brought an increasing consumption of derivative products. A diet of this kind requires a larger amount of land and agricultural facilities than does a strictly cereal diet. From the world standpoint it is obvious that in overpopulated countries such as China and India a diet like ours would be impractical. But in a country such as the United States and in much of northwestern Europe and the British Commonwealth, a diet based on a greater percentage of derivative products is not only feasible and practical, but in line with the trends in food habits.

Second, shifts to better nutrition along these lines will involve rather complex problems in regional adjustments. The challenge to the farmers of the United States is whether they will be willing to make these adjustments to the extent necessary. If the trend in food habits and diets continues along the popular line, a principle which we will have to accept more and more is that farmers grow locally those food crops which are too bulky and costly to ship in from distant points. In an agricultural economy of this kind, we would rely on farmers in the remoter parts of the country to supply the products that are nonperishable and have a high intrinsic value per unit shipped; production of the bulkier and lower-unit-value foods would be encouraged locally. Considerations like these will have to enter into both our domestic and international food and agricultural planning.

From a practical standpoint here at home, we know that there are many instances in which essential protective foodstuffs, or substitutes for them, can be grown and supplied locally. An outstanding example of this is the Victory Garden program. The idea of nutritional self-sufficiency of communities can readily be encouraged through active nutrition committees who are in a position to know what foods are needed in terms of the local population. Through the county home demonstration agent, who is usually on the nutrition committee, these local needs can be reflected to the agriculturists: research workers, county agricultural agents, and farmers. Thus the problem of essential local dietary needs will come to the attention of those who are familiar with good farm management, who understand the national food requirements, and who can do something about stimulating the necessary local production.

A third implication presenting a possible future challenge is the relation of nutrition to soil science and soil practices, as well as to genetics as this concerns plant and animal breeding. Recently there has been increasing discussion regarding the effect of the so-called trace elements in soils of the various regions on food, diet, and health. It is an interesting subject to discuss, but research on it is still in its initial phases. It began at the U. S. Plant, Soil and Nutrition Laboratory at Cornell University, under the direction of Dr. L. A. Maynard. It seems too early to generalize, and we should look ahead to whatever the experimental work now under way is likely to disclose. In the matter of over-all relationship between nutrition and soil practice, however, we must recognize that dietary policies and planning based on an increase in the use of livestock products will tend, when coupled with other sound soil practices, to increase soil fertility. In the realm of genetics, progress has been truly phenomenal. In its practical applications we have reached a point where, through the selection of genes bearing desirable characteristics, we can develop more productive herds, desirable types of animals such as bacon hogs, adapted varieties of crop plants, vegetables, seeds, and fruits. Genetic science furnishes us with one of the most amazing tools for advancement in the technology of modern food production.

As a fourth point, agriculture in this country will want to make its contribution to peace through collaboration in an international food and agriculture program. The focal point for such a program is the nutritional requirement of populations to be fed. How agriculture will provide the food which, according to the nutrition yardstick, is needed by all the peoples of the world, remains to be worked out. The United Nations Conference on Food and Agriculture and the work of the Interim Commission have served only as the initial phase of such a tremendous task. Getting the international food and agricultural agency into gear will require understanding here at home as well as abroad. It will require setting into motion the means whereby many countries and many

people learn to help themselves. It will require extensive exchange of technological information, not only on farm production methods, but on food, industrial processes such as dehydration, quick-freezing, refrigeration, and the adaptation of foods to conditions prevailing in the tropics as well as the arctic regions. Today the men of science know that finding a solution to these problems—on a worldwide scale—is no longer an idle dream, but something that can be achieved within the next few generations.

THE IMPORTANCE OF MASS EDUCATION

Agriculturists who come to this country to get acquainted with our methods of agricultural research recognize that it is not this alone that has made technological agriculture "click" in the United States. They are impressed by the confidence which our farmers place in the results of science; by their readiness to change from old to new methods; and by their acceptance of farm practices recommended by our scientists. They appreciate that much of this is due to the splendid teamwork that has developed between research and the projection of research findings into widespread knowledge and practice. They have seen, in agriculture, advances in the dissemination of this knowledge that have been achieved through extension work and other facilities. In related fields, they have also noted compánion developments in mass education techniques that go beyond the rural or farm population to reach all groups in the country.

A recent discussion which I had with a Chinese friend has left me impressed more than ever with the importance of the educational complement to all our scientific progress. We talked of the influence of American education on Chinese life. My friend stated that, despite the progress made in many directions, it was possible that the influence might have been greater if, in addition to stressing the study of science, greater emphasis had been placed on developing means of transmitting the practical aspects of scientific knowledge to the multitudes of the Chinese people. My friend called attention to the fact that, since the Boxer Rebellion in China, more than 500 students had come to the United States to study agriculture, and that of this number there are perhaps not more than 100 now working throughout China. We agreed that a basic error had been made in that these students had concentrated on the study of science and had failed to study the educational methods which, in this country, have gone side by side with progress in research.

All of you here, I am sure, have participated in some direct aspect of the National Nutrition Program. I should like to discuss the educational implications of this program, apart from any agricultural considerations, with particular reference to the mass dissemination of scientific nutrition knowledge. Educational efforts such as those undertaken through the nutrition program must certainly be a companion consideration to anything that will be undertaken toward the improvement of the food supply, if the challenge of nutrition is to be fully met. The job still to be done in this field is dependent upon the technical knowledge of the dietitian, the nutritionist, the biochemist, the home economist, and all others who have had laboratory or other professional training in the science of foods and nutrition. But the troublesome problem has always been the development of adequate ways and means of quickly transmitting technical nutrition knowledge from the laboratories to the place where it can become the common property of the average human being. I believe we have a head start on this problem in the United States with respect to nutrition.

First of all, this could not have been accomplished except through a coordinated operation in which the entire resources of a nation are mobilized around a basic objective, while a flexibility that gives full rein to the individual initiative of the cooperating groups is retained. That a structure of this kind should be developed in the United States for the spread of practical nutrition knowledge was one of the principal recommendations of the National Nutrition Conference in 1941. As the result of a spontaneous acceptance of this concept by the many interests and groups represented at the Conference there is now, I think we can all take pride in saying, an example of coordinated effort of tremendous range and significance that has never before quite been equalled and that has steadily gained strength. True, it has had the stimulus of wartime conditions as a factor in its development and its wartime contribution at the moment is our first consideration. But I believe that its significance will be recognized as intrinsically so important to the postwar developments contemplated by the Food and Agriculture Conference that its continuance as a permanent nationwide operation must be assured.

Through the cooperative efforts of all who have been associated with the national program, the importance of good nutrition to personal well-being is now understood by thousands of persons, years ahead of the time when this understanding might ordinarily have been expected to become common knowledge. But what is not so clearly recognized is the significance of the program, from a public administration point of view, as a pioneering experiment in nationwide cooperative organization based almost entirely on voluntary cooperation. There are now almost 4000 local nutrition committees cooperating in the nutrition program. These committees, while of varying characteristics, have been formed usually around a nucleus of such local people working in nutrition as the home economics teacher in the public schools, the local extension home demonstration agent, the public health nurse and doctor, the Red Cross nutrition leader, nutritionists and dietitians employed in the community, as well as lay individuals. In each state, these committees are collaborating with a state committee similarly made up of representatives of agencies and other groups most concerned with nutrition interests. Meanwhile, federal agencies responsible for nutrition work have been working together for a number of years. There is thus what we might call a horizontal coordination of nutrition interests operating across departmental and agency lines with respect to resources of the local community, the state, and the Federal Government. There is also a vertical type of coordination developing through individual agency communications and field representatives of the agencies, both federal and state, based on common understandings arrived at in joint committee discussions. In addition to the cooperation of government and quasi-government agencies, there is wide participation in the program by other groups or interests—civic organizations, labor, food industries, scientific groups, and many others.

If we are to give full recognition to the primary accomplishments in nutrition education, I believe that all of us who are participating in this program must begin to think of it as more than just a wartime program of nutrition education and to see its potentialities as a plan of working together in this field in the postwar world. I believe that in terms of local interests and needs, through this organization a facility now exists for implementing future nutrition objectives such as may ultimately grow out of the Food and Agriculture Conference, and a means for marshalling representative opinion relative to future nutrition problems. The National Nutrition Program in its own particular field, I believe, has already achieved not only a concept of unified effort but has moved beyond concepts into practice. It is only through these means that the tremendous challenges of the future can be met.

NUTRITION AND PUBLIC HEALTH

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NUTRITION is not only a challenge to public health, but a challenge with a high priority. The fact that the first priority goes to agriculture does not make the challenge to public health, or to any of the agencies directly concerned with human welfare, less strong. In a problem so broad in scope the pressure of developments in one field contributes to effects in another. For example: certain research in nutrition led to vitamin D milk; agricultural surpluses stimulated development of the school lunch program; education in home economics and nutrition has increased the public understanding of the importance of good nutrition. Better understanding of the effects of malnutrition is bringing greater pressure for the elimination of its causes and is increasing the demand for improvement of the nutritional status of the population. Thus public health is challenged by developments in other fields, and, at the same time, is reinforced by the increased interest of other groups in the public health aspects of a common problem.

DETERMINING THE NATURE OF THE PROBLEM

It is evident that in attempting to solve any problem the chances of reaching a satisfactory solution are much better if we know exactly what the problem is. I think you will agree that many agencies and groups must contribute to the task of defining exactly the world's nutrition problem. I shall discuss only the contribution which can be made by public health. Let us look at the methods by which organized public health has approached other great health problems, for example that of communicable disease control. This is a pattern which might well be followed in the public health approach to the nutrition problem.

Here, the kind, prevalence, and distribution of the various communicable diseases which menace the health of large population groups are determined. The data are collected, studied and interpreted. Efforts are made to learn the causes, and measures are recommended for preventing and controlling the diseases. In accomplishing this the health officer works in cooperation with the physicians and with other agencies.

The fact that nutrition is a public health problem is just now being recognized by increasing numbers of public health officials. This is largely because new knowledge has only recently indicated that malnutrition is a problem of public health importance in this country.

Newly acquired knowledge of the effects of mild and moderate degrees of malnutrition upon the health of human beings is bringing all of us to the realization that nutrition, good or bad, affects the health status of every individual. Health officers are now recognizing the fact that a few cases of full-blown pellagra, beriberi, or severe infantile rickets or scurvy are not a true measure of the public health nutrition problem in the populations they serve. For every one of these cases there are many mild unrecognized ones. More and more health officers are seeking ways of measuring the nutritional state of the individual. Many of them are now looking for *early* signs of nutritional deficiency in the people they examine.

But many are just beginning to recognize the importance of the public health aspects of the nutrition problem. Not yet have we accepted the responsibility for dealing with it as we deal with communicable disease control. There are many reasons for this, not the least of which is that certain mild signs of malnutrition are so common and so nonspecific that they are overlooked entirely.

Another problem which confronts the health officer who wants to learn how much nutritional deficiency is present in the people he serves, is that of inadequate reporting of the deficiency diseases. Only reports of deaths are made for practically all these diseases, and the health officer has no way of knowing even the number of cases that physicians are treating. Pellagra is a reportable disease in a few states. It may interest you to know that it is reportable because many years ago it was considered to be a communicable disease. However, even in states where reporting is required, we know that the incidence of pellagra is much greater than the morbidity and mortality reports indicate. Taking the 1943 morbidity and mortality reports on pellagra for the country as a whole, we find some interesting evidence of the inadequacy of the reporting of this deficiency disease. Even in this year of high employment and high wages there were 1303 reported deaths from pellagra and 5231 reported cases. If this figure actually represented all of the cases, the mortality rate would be about 20 per cent. We know that pellagra is not a disease which kills at this rate. Furthermore, we cannot have more deaths from pellagra than we have cases, as reports from some states indicate. There is good evidence that the mortality from pellagra is not greater than 3 per cent of the total number of clearly recognizable cases. The death rate today probably is even less than this because of new and more effective methods of treatment. However, if we accept the 1303 reported deaths in 1943 as the most nearly accurate figure and calculate that this represents not more than 3 per cent of the cases, the estimated number of cases of pellagra for 1943 becomes 43,400. This would be only the clearly evident cases and does not take into account the probably very large number of people with mild symptoms. Such a rough estimate gives us some idea of the inadequacy of our knowledge of the means of meeting even this one deficiency disease as a public health problem.

The growing evidence that malnutrition is a problem of such magnitude that it affects large numbers of people, presents a challenge to public health authorities. It also carries an obligation, for public health is charged with the responsibility for protecting the health of the people. Any disease or condition which undermines the health of large masses of people in every part of the country thus becomes a public health problem in every sense of the word.

The coming of war, with its attendant food shortages, stimulated increased attention to nutrition on the part of both agricultural and public health agencies. In England, dietary and nutrition surveys have been conducted by the Oxford Nutrition Survey. The primary purpose of this organization has been to discover the incidence, cause, severity, and distribution of malnutrition in England (1).

In Canada dietary surveys have been conducted under the auspices of the Canadian Nutrition Council (2). Of these, and other surveys conducted there, Pett (3) states, "Every dietary study in Canada has indicated that some people in the group were not eating the quantities of food recommended for best health, and consequently were not receiving supplies of certain nutrients in suggested amounts. In terms of nutrients most of these surveys have suggested relative deficiencies of ascorbic acid (vitamin C), thiamin and other B vitamins, calcium, iron, vitamin A, and protein."

Even before the war, studies initiated by the League

of Nations (4) produced evidence of widespread malnutrition and suboptimal nutrition in various parts of the world.

The United Nation's Conference on Food and Agriculture brought forward additional information on conditions which prevailed before the war. Keratomalacia is the commonest cause of blindness in southern India, and beriberi and osteomalacia are serious public health problems in certain areas (5).

In China, dietary surveys have shown that the average diet is deficient, and that malnutrition is especially prevalent among infants, young children, and women of childbearing age.

In Java, tropical Africa, and Egypt studies have shown that malnutrition is widespread. The incidence of deficiency diseases is high.

In Mexico, Central America, and South America surveys have shown that "food deficiency and widespread malnutrition exist."

At the Hot Springs Conference it was emphasized again and again that in addition to the ill effects of malnutrition as such, it is also an underlying factor in many other public health problems such as tuberculosis, and in high mortality rates, especially in children. The seriousness of infant and child mortality in some of the Asiatic and tropical countries is indicated by the problem in India, where nearly 50 per cent of the total mortality occurs in children under 10 years of age. This is about five times the percentage of such deaths in western countries.

The work of the League of Nations and the information gained from the United Nation's Conference on Food and Agriculture have given us a glimpse of the problem as it existed before the war. Conditions which will be found in some of the Axis-occupied countries will undoubtedly present additional serious problems. But even if we confine our present concern to conditions which prevailed before the war, the tasks which face public health are tremendous.

I have suggested that the contribution which public health can make to the over-all nutrition program is in the collection, interpretation, and dispensation of information concerning the kind, severity, prevalence, and distribution of malnutrition. Most of the information we now have is based on dietary surveys. These serve to point the way, but we need more complete information. We also must know what deficiency diseases exist, where they exist, who has them, how many people have them, and how severe they are.

In the United States, many nutrition surveys and dietary studies of selected population groups have been conducted and those conducted during the past decade summarized (6). These indicate that malnutrition is a serious problem on the farm as well as in the city; it affects both children and adults; it is found among people who have all the money they need for food as well as among those who live on relief allowances; it occurs in all sections of the country.

Of course, the percentage of unsatisfactory diets is greater among people of low income than among those who have more money. Less evidence of gross dietary deficiency is found in some sections of the country than in others, but no section is sufficiently free from malnutrition to warrant complacency.

Although we know that the problem is large, it is still true that our knowledge of the exact incidence, severity, and distribution of malnutrition in the United States is extremely limited. A start has been made, but compared to our knowledge of the incidence, severity, and distribution of communicable disease, our information on the nutrition problem is negligible.

This is understandable. Until recently only the obvious deficiency diseases were recognized as signs of nutritional failure. Methods for detecting malnutrition in its early stages have not been perfected and adapted to work with large population groups.

About a year ago (7) Surgeon General Parran said that he hoped future studies in the field of early diagnosis would be intensified in the direction of finding better tools for the use of the public health forces of the country. Given such tools, organized public health could go far toward meeting its responsibility for evaluating the nutritional status of the population, thus providing information which can be used by agricultural and other agencies in "applying the cure."

Already health departments in two southern states are working in cooperation with the Rockefeller Foundation in an attempt to test some of the methods for assessing nutritional status on a public health scale (8, 9). In addition, more limited surveys of dietary habits and of certain nutritional deficiencies have been undertaken or are being planned by some state and local health departments.

PREVENTIVE MEASURES

Increasing numbers of public health officials are concerning themselves with such problems as anemia, especially in school children and in women seen in maternity and child welfare clinics. Some are concerned about the evidence of vitamin C deficiency and others about the high incidence of dental defects in the populations they serve. They are seeking ways to study these problems, to learn why they exist, and to find methods by which the incidence, severity, and distribution of such nutritional deficiency states can be determined. In cooperation with other agencies, they are also seeking ways of developing preventive measures which can be applied on a public health scale.

Preventive measures must include much more than just education if quick and effective results are to be obtained. It is necessary also to take measures to make needed foods available and to improve the nutritive value of available foods when this is indicated.

The problem of improving the nutritive value of food is one which dietitians and nutritionists have appreciated for many years and have worked industriously to solve. Better methods of cooking, better food processing, and the use of whole grain cereals all have received much attention. When the accumulated evidence indicated that a considerable number of people in this country were not getting enough of the vitamins of the B complex, the National Research Council recommended a direct attack on the problem by the enrichment of white flour and bread. Begun on a voluntary basis, by the end of 1942 from 75 to 80 per cent of all family flour and baker's white pan bread, and all of the flour used by the Army, Navy, and federal institutions had been enriched. Early in 1943 a war food regulation was announced requiring the enrichment of baker's white bread (10).

Many people think that the enrichment program has been established on a national basis by law. This is not the case. Six states[1] have now passed laws requiring it. After the war, the enrichment of flour and bread will again be up to the individual miller and baker except when it is required by state legislation.

Some people seem to have mistakenly regarded the flour and bread enrichment program as one for the replacement of whole wheat flour and bread. This is

[1] South Carolina, Louisiana, Alabama, Texas, Mississippi and Kentucky; three of these states also have laws requiring enrichment of corn meal and grits.

not true. The program, instead, is one of making the white flour and bread that *is* used more valuable nutritionally. In all of our activities we have given whole wheat flour and bread a prominent place, even though the content of some of the vitamins is not so good as in the enriched product. At the same time we have faced the fact that more than 90 per cent of our flour is consumed as white flour and this is the product which reaches most of the people. It certainly will take many, many years of education to shift this use to whole wheat flour, if it ever can be brought about. Therefore, to meet the existing situation and still have the useful features of white flour, enrichment was obvious. In Canada where an attempt has been made to use a longer extraction flour without enrichment, the difficulty has been to get the flour used. The available data indicate that this flour and bread are reaching only a small proportion of the Canadian population with the result that the large proportion of the population still using white flour and bread fail to get the nutritional benefits possible when these products are enriched.

The enrichment program improves the nutritive value of white bread and flour by adding some of the essential nutrients at the source. In the field of sanitation, we do not attempt to safeguard the water supply, and thus protect the health of the people, by trying to teach everybody to boil water before drinking it. The task is accomplished by treating the public water supply at its source. Correction is a public health measure which is handled quickly and efficiently. All public water supply is purified and the benefits are made available to everyone. The enrichment of flour and bread may be regarded as a similar public health measure.

EDUCATIONAL MEASURES

While public health agencies are working toward the development of more adequate services in the field of public health nutrition appraisal, much nutrition work is being done by both state and local health departments.

We are assisting public health officials and medical groups further to develop the public health phases of the nutrition program. In addition to offering consultation service in the field of public health nutrition, a technique has been developed by Dr. W. Wilkins of using nutrition clinic demonstrations, sponsored jointly by health departments and nutrition committees, the chief purposes of which are:

1. To give cooperating workers in the National Nutrition Program a more adequate concept of the effects of good and poor nutrition on people.
2. To stress the fact that most of the malnutrition in this country is found in mild or moderately severe forms rather than as severe deficiency states.
3. To emphasize the fact that malnutrition is "a group of diseases" to which many factors contribute, and that understanding of the problem depends upon an appreciation of its various aspects.
4. To point out that, because malnutrition may be the result of either organic or functional disturbances or disease conditions, malnutrition in the individual should be recognized as a medical problem which should be diagnosed and treated by a physician.
5. To emphasize that the nutrition problems of the community depend for their solution on appreciation of the various aspects of these problems by all individuals and agencies working in the field of nutrition and upon their coordinated efforts to work out solutions.
6. To stress the fact that malnutrition can be prevented by the establishment and maintenance of good food habits, together with wise production, distribution, and utilization of food.

At the 39 nutrition clinic demonstrations held in 13 states and the District of Columbia, various signs and degrees of malnutrition have been demonstrated. Health departments and nutrition committees that have cooperated in organizing and conducting the demonstrations are enthusiastic about this method of pointing out local nutrition problems and of stimulating interest in the development of a coordinated attack upon them. In several states, agronomists from state agricultural agencies or colleges have participated in the discussions preceding and following clinic demonstrations. They have emphasized the relationship between soils, food production, and human nutrition. Following a number of the clinic demonstrations, plans have been made for future work, based on facts brought out in the demonstrations and discussions. Some of the health officers who participated in the demonstrations are planning limited nutrition appraisal of certain groups in their localities.

In spite of the fact that we are handicapped by lack of adequate methods for evaluating the nutritional status of population groups, health officers and physicians can use the means now available to study the prevalence of malnutrition. For example, studies of the hemoglobin levels of various population groups are of great value in defining the problem of nutritional anemia. Health officers can also help to relate nutrition problems to other public health and medical problems. Some of the activities in which health departments can participate in their work with other agencies and with existing programs have been outlined by Sebrell and Wilkins (11).

In brief, a well-rounded public health nutrition program must provide:

1. Appraisal of the kind and degree of malnutrition in population groups.
2. Dissemination of information concerning malnutrition found in the area served by the health department.
3. Recommendations as to measures which can be taken to prevent malnutrition.

Since the nutrition work of the health department must be a part of the general public health program, it is especially important that it become an integral part of the work done in the school health, preschool, maternity and infancy, industrial hygiene, tuberculosis control, and oral hygiene programs. If the clinic patient is given any kind of physical appraisal, it should include assessment of his nutritional status. Even though the examination may necessarily be limited, the examiner should be aware that nutrition has played a part in determining the health of the patient.

In order to meet its responsiblity for determining the nutritional status of population groups, public health will, in the future, need increasing numbers of people trained in the public health phases of nutrition work. This means that public health agencies will need more medical nutrition specialists. They will also need many more nutritionists whose background training is in the fields of home economics and dietetics. Even now a number of local health departments are employing such personnel. The number needed should continue to increase for a long time to come.

COOPERATION WITH OTHER AGENCIES

Although the public health phases of the National Nutrition Program are primarily health problems, it is essential that the health department work closely with other agencies. The field of nutrition is so broad that no single approach can, by itself, be effective. The very nature of the problem demands several separate but coordinated approaches.

Public health, agriculture, and education all have essential contributions to make to any nutrition program. All three approaches are essential. Coordination of the work of the various groups multiplies their effective-

ness many times. This coordination of effort must extend to the local communities, the state agencies, and the agencies of the Federal Government. In many places this will require a new type of organization. This is as true of the organization of nations as it is of federal, state and local organizations.

Our goal is proper food for health for all. We can and we must eradicate the illness due to bad nutrition. We can neither ignore the health and welfare of our neighbor nor solve his problems by individual effort. If this war has taught us anything, it is that all of us must work together for the common good. Those of you who want to see a better world can begin to bring it about by cooperating in the movement to bring better nutrition to everyone.

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Inadequate Diets and Nutrition Deficiencies

In Bulletin 109 of the National Research Council, entitled "Inadequate Diets and Nutrition Deficiencies in the United States —Their Prevalence and Significance," a report of the Committee on Diagnosis and Pathology of Nutritional Deficiencies, it is concluded that all the evidence from numerous surveys over the past ten years, among persons of all ages in many localities, without exception is in complete agreement that inadequate diets are widespread in this nation. The committee concludes that the problem is both a preventive and corrective one. On the preventive side, it is evident that production of sufficient food should be maintained and that more effective distribution of proper food is needed. For the latter, it would seem advisable to give further consideration to the program of judicious enrichment of appropriate foods since that would add much to the guarantee of successful nutrition. It is also evident that diet education must be intensified and extended to the utmost, and raised to new heights of effectiveness.

On the corrective side, there is need for detection and therapeutic treatment of deficiency states among the population. For this project it is necessary to disseminate the new diagnostic methods among the medical and public health professions. Foremost among the steps in this direction would be: (1) preparation of a handbook on methods of detecting deficiency states; (2) establishment of training centers for instruction in the medical aspects of nutrition, especially diagnosis of the deficiency states; and (3) introduction of adequate courses on nutrition, particularly its clinical aspects, into medical schools.

These conclusions are based largely on 189 references to the literature.

Physical Status of the American Fighting Man

The American fighting man is tough, physically and mentally fit to combat the best that the enemy can pit against him. His spirit is high, his morale is good, he is well armed and fed and is giving a good account of himself on every battlefront. This is not just a matter of chance. It is the result of an effective program of military medicine. . . . Surgery has been brought forward to the patients. Field hospital platoons supplemented by surgical teams now operate on the nontransportable at the clearing station in the Division Area, two to four miles behind the lines. Here these cases receive the best of specialized surgical and nursing care by surgical teams and our Army nurses who accompany them. Too much cannot be said for the services these nurses are performing. . . . They undergo the same hardships as soldiers. —*Maj. Gen. Norman T. Kirk in an address before the Association of Military Surgeons, New York, November 3.*

Postwar Nutrition Policy Predicted in Argentina

At the Third International Nutrition Conference in 1939, certain ideas were presented which have since proved practical in England, and which may well be important in postwar social planning. The concept of "Capital and Labor" as the basis of economic relations is replaced by the "Biological Concept." Each family is assured of sufficient means for maintaining health, and for securing adequate shelter and clothing, recreation and rest. Labor is paid in relation to need, and while recompense varies according to skill, the lowest wage must be sufficient to support normal life.

In South American countries it has been demonstrated that under conditions of chronic malnutrition a family will disappear in the fourth generation. Moral as well as physical deterioration of society results when any substantial fraction of the population is consistently undernourished, the yardstick being the condition of the middle class (70 to 80 per cent of the population).

The Argentine Institute of Nutrition is committed to studying the national biologic, economic, and social problems, and to the betterment of the whole nutrition picture.

R. A. Scott James has stated that in England the worker's salary is no longer measured by what industry can pay, but by what the worker must have in order to live. Sir John Orr writes in *England Today* that the war has obliged the British to produce not for the market, but for consumption. Every family, no matter how poor, must be provided with the necessities for promoting maximum efficiency in the war effort.

The lessons of the present war and the way in which governments must try to prepare their people for winning final victory have demonstrated the truth of the doctrine on which the National Nutrition Institute was founded and upon which its work is based. —*From La Política de la Alimentación en el Mundo de la Postguerra by Dr. Pedro Escudero, in Revista Argentino-Norteamericana de Ciencias Medicas, August 1943, translated by Margaret Shatswell Price.*

NUTRITION AND THE COMMUNITY

MAXINE TURNER

Nutrition Consultant, Oklahoma State Health Department, Oklahoma City

THE objective of a community nutrition program is to put into actual practice the plans made by leaders in agriculture and public health administrators. An abundance of food can be produced, and science can tell us almost to the exact milligram the amount of each food nutrient needed for health, but unless each individual has the food available, properly prepared, and actually consumes the quantity needed, the objectives cannot be reached.

Communities are made up of individuals, the action of each determines the success of any program. What food is produced at home, what can be bought and is bought, how food is stored and prepared, the likes and dislikes of the family members, what can be purchased when a meal is eaten out, are all down-to-earth problems which must be considered if good nutrition is to be applied.

For many years various groups and agencies have been conducting educational programs planned to help people improve their nutritional status. Often it has been difficult for a community to recognize the value and significance of such a program. However, since the war began, no educational program has held the spotlight as consistently as the community nutrition program. The National Nutrition Conference in May 1941 turned the spotlight on, and it has been shining in varying degrees in every community since.

Food habit studies and reports from draft boards made us more aware of the fact that even though there were many successful, isolated nutrition programs, some groups were still not being reached at all and others not adequately. To meet this problem, it was decided that nutrition committees should be organized, with representatives from the various state and local organizations and agencies whose regular program or official responsibility included activities in the field of food and nutrition. The purpose of the nutrition committees would be to coordinate the work being done in the community, avoid duplication, and fill in gaps where no agency was working.

In Oklahoma, we have nutrition committees organized at both state and county levels, and we feel that we have been able to accomplish something toward the goals set for the national, state, and local nutrition programs, which are as follows:

To make available to everybody the basic knowledge of good nutrition in simple terms.

To interest people in putting such knowledge into practice, and then to show them how to do it.

To encourage those who have the facilities to produce a variety of nutritious foods.

To support through group action any practical measures which will make available to everybody the amounts and kinds of foods considered necessary for good health and general well-being.

At first, the membership of the nutrition committee in our state was made up of professionally trained people only, most of whom were home economists, but as we began our program of work we found that there were other groups who had contributed much to the nutrition of the people of the state and should be represented on our committee. As we studied the contribution others were making, we added to our membership representatives of agriculture, dairying, milling, the grocery business, restaurants, utilities, libraries, elementary schools, and others, so that now we have a group with varied interests whose viewpoints can help to broaden our program.

It did not take us long to recognize the importance of good local organization. In order to further the organization of county nutrition committees, a plan was devised whereby representatives of the state nutrition committee could meet with the county nutrition committees. The 20 representatives selected were field agents of the Agriculture Extension Division, Farm Security, Home Economics Education, and Public Health agencies. They were assigned four or five counties within the area in which they regularly traveled for their own agencies, and were given a course of instruction in which a suggested plan of procedure in meeting with county nutrition committees was discussed, and the following points stressed:

1. That plans be made to meet with county nutrition committees on a quarterly basis, or as often as the nutrition program would require and transportation permit.
2. That the persons making contact do so as representatives of the state nutrition committee, and that all recommendations made be in accord with the recommendations of the state committee.
3. That representatives keep in mind, at all times, that they are to assist the committees in developing the programs under way, but not to determine what the program should be.

We have found that this method of contact has been very helpful to both the county and state committees. This year, we have assigned each representative a new list of counties, still in her own travel area. We felt that the old adage, "variety is the spice of life," could also apply to nutrition committees.

We hold meetings of the chairmen of the county nutrition committees before any program is launched. A series of four district meetings was held last spring, when we had the assistance of the field agent of the Nutrition Programs Branch, WFA. The meetings were characterized by informal discussions of the problems of the county committees. A list of questions had been sent out to the chairmen before the meeting, with the request that they be prepared to discuss them. During the discussions, it was found that topics in which the chairmen were most interested were: how to determine the nutrition problems in the county, what goals should be set up, what type of organization seemed to function best, what by-laws should be adopted, what activities could be undertaken, and what help could be expected from the state nutrition committee and the National Nutrition Program.

Our last meeting of county chairmen was held this fall just preceding the Oklahoma Home Economics Association meeting. The bread and flour enrichment program had been launched at this time and the importance of this in the nutrition program was discussed and activities that county committees could carry out in this connection were pointed out. A summary of the proposed bill to be introduced in the next legislature was given. Educational materials and aids available for use in a campaign were shown, and lists and samples were given to each chairman. Thus, with the follow-up work by representatives in each county, we feel that the county committees will have had sufficient help to organize an educational program on enrichment that will reach everyone in the state before the bill is introduced in the legislature.

We have evidence that many of our county committees are very active, not only in strengthening the nutrition activities already in progress in the community, but in filling in the gaps where no agency is working. A good example of such a program is found in Cleveland County, situated almost in the center of Oklahoma, and covering an area of 547 sq. mi. with a population of approximately 28,500. Norman, the county seat, has a population of

18,426; three smaller towns less than 1000 each; while the rest of the county is rural. Diversified farming is practiced throughout the county, and adequate gardens seem to be the rule, rather than the exception. The University of Oklahoma and two large naval bases are located at Norman.

The county nutrition committee was organized here in 1941, with a membership including home economics teachers in high schools and the university, supervisors of elementary schools, county superintendent, home demonstration and county agent, Farm Security supervisors, War Council coordinator, health officer, public health nurses, homemakers, and representatives of the Red Cross, Parent-Teachers Association, and Federated Women's Clubs.

Just after the committees were organized, the health officer reported that she had found a large percentage of the children in many of the rural schools showing some evidence of malnutrition. A cursory survey of the food available in the homes revealed that the proper foods seemed to be available, but that the children did not always eat as they should because of likes and dislikes. Considering that this was a problem on which they could all work, the committee decided to try to interest school teachers in the county in food and nutrition, and to assist them, in turn, in interesting the children.

First, kits of nutrition material were circulated among the teachers, which was not too successful. Then a nutrition teaching guide was given to each teacher in the elementary schools of the county, which was first explained at the county teachers' meeting. Teachers were asked to try it out in the schools and send suggestions to the county nutrition committee at the end of the year. This year the guide was revised, with the suggestions incorporated, and again sent on its way. Members of the committee also visit the schools to stimulate nutrition teaching and assist wherever possible.

Another project which the committee undertook was the Farm Market in Norman. There was no place in this community where farmers could sell their produce, unless they peddled it or sold it to retail grocers. Garden produce was going to waste while homemakers were eagerly seeking fruit and vegetables to can. The committee interested the Chamber of Commerce in providing a market. Working together, they obtained a vacant lot and built a shed with tables and stalls where the produce could be displayed. This is the second year for the market, which has become an established institution in that community.

The home economics girls in the high school, under the close guidance and supervision of their teacher, assist the County Health Department with their nutrition program. Saturday morning they work with the children who are waiting to be seen at the clinic. They gather them around a table and talk about food, using food models to plan good breakfasts or other meals, showing pictures and telling stories about foods, and carrying on other activities that will interest as well as teach the children. The mothers usually form a circle outside of the group and are as interested as the children. The home economics girls have also given lessons in food and nutrition in the elementary schools, adapting the lessons to the proper grade.

The committee is sponsoring a series of radio programs, "Food Makes a Difference," over the local radio station. They are also supplying material for a column, "Food for Folks," appearing regularly in a daily newspaper, as well as distributing news releases concerning their activities. At the request of the Red Cross, they are preparing material on food budgets for wives of Navy men stationed in Norman. They also furnish consultant service for some of the cases referred to them by the Red Cross, and assist the latter in arranging and conducting their regular nutrition courses. One of the problems on which they expect to concentrate this year is the school lunch. More schools will be encouraged to initiate a school lunch program and to make those already in operation more educational in character.

These are but a few of the activities and goals of the Cleveland County Nutrition Committee. You may wonder how such an active program can be successfully executed. The first requirement for success is good community leadership. Cleveland County is fortunate in this respect, but not all communities are so fortunate. As we look forward to achieving the goals set for our national and international food program, the training of more leaders must be seriously considered.

We need more leaders among the medical profession to give us guidance in the nutrition program, more community nutritionists, more elementary school teachers trained in nutrition, more people in commercial eating establishments with a knowledge of the fundamentals of good nutrition. We need leaders who are willing to work and who will give the time needed to consider together the needs of the community, to make plans to meet those needs, and carry out the plans.

The second requirement for a successful program is good coordination and cooperation of all organizations and agencies in the community. County nutrition committees are doing a great deal to achieve this end.

And lastly, we need more good visual education materials and teaching aids: materials that will interpret food and nutrition in terms that everyone can understand, materials so interesting that people will want to learn more and will practice what they have learned. We have an abundance of such materials now, compared to what we had a few years ago, but we still need more.

The community is the proving ground for all state, national, and international programs on food and nutrition. As long as there is one person in a community who is undernourished because he does not know what he should eat, there will be a need for a community nutrition program.

Health Education

Nutrition has become a mass operation under scientific guidance. Everywhere we turn in our civilization under the present strain of war we find science and the trained man and woman giving indispensable service.

Since this is as true of our enemies as it is of us, there can be no letup in our efforts to know all that is known and to seek to know more. There is a premium on research such as we have never seen before.

How wonderful it is to realize that we live under the universal laws of nature. When once known to us, these laws can be depended on always to play the game square. Medicine and magic have been completely divorced. The variable and unpredictable operation of the central nervous system remains our least understood area of knowledge; but even in the fields of the mind we are sensing the beginning of scientific procedures. Through a vast volume of words, phrases, and speculations occasionally shafts of light are showing. We are beginning to see how environment and changes have followed us through our evolutionary rise out of the sea . . . .

Medicine based on pills and potions is becoming obsolete. The new physiology, with the help of physics and chemistry, has taught us many ways to deal with the living body that were only dreamed of a decade ago. . . . Biologic thinking is replacing empiricism.—*Ray Lyman Wilbur, J.A.M.A., March 25, 1944.*

Editorial

CHECKING PLATE WASTE IN HOSPITALS AND OTHER FEEDING UNITS

A method of procedure which would provide a uniform system of checking plate waste in hospitals or other feeding units, as formulated by a subcommittee of the Administration Section of the American Dietetic Association, was described in this JOURNAL, June 1944. Since then the waste chart devised for use in this procedure has been tried out by members of the committee and as a result many valuable suggestions and criticisms have been made. The following major changes in the original procedures and chart were submitted by Bertha Biltz, St. Luke's Hospital, Cleveland, chairman of the committee, at a session on Administration Problems of the Dietary Department at the Chicago meeting:

Waste Chart

DATE	MEAL	EDIBLE WASTE	MILK WASTE	NO. OF TRAYS SERVED	WASTE PER PATIENT PER DAY	KIND OR TYPE OF WASTE			REASON FOR WASTE
						Breakfast	Dinner	Supper	
		gal.	*qt.*		*oz.*				
	B								
	D								
	S								
	B								
	D								
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	S								

I. Hospital—private, general, city, state, county
Patients—men, women, children
Service—medical, surgical, obstetrical
Menu—selective, regular

II. Other Feeding Units—dormitories, hospital personnel, etc.
Service—table, cafeteria
Menu—selective, regular

Note: Average weight of 1 gal. edible garbage, 75 oz. (Use this figure in computing ounces per patient per day.)

1. Definition of "edible waste" should be changed from "unconsumed edible food" to "any returned food which could have been eaten."

2. Column for inedible waste is to be omitted because separation of inedible waste varies with different garbage contracts. For example, many garbage contracts call for keeping orange skins and coffee grounds separate from other waste.

3. Include a column headed "milk waste." Returned milk is to be measured occasionally, if specific institutions are interested. If not it is combined with edible waste.

4. Add column for "waste per patient per day" in ounces. This has brought up the question of weighing versus measuring. The preliminary studies show that the amount of waste by either method has no particular value unless a detailed analysis of waste is made. Since method and time of collecting garbage during the day vary greatly in hospitals, and since scales are not always available, it would seem more practical to check after each meal and record waste in gallons. An analysis of waste could then be made and reasons established for the waste, such as cold food, poor menu, too large servings, types and condition of patient, etc. An average of a number of studies established a usable weight figure of 75 oz. per 1 gal. edible garbage. If all studies are done consistently by volume, the same comparison could be made as is now done by actual weight studies.

The original procedures called for a one-week trial period and a two-week study period. It is suggested that this be changed to a two-day trial period and a one-week study period.

Because of the extreme scarcity of labor and time during the past year, it was recommended that the study be continued another year. The accompanying revised chart, as presented at the Chicago meeting, will be used this year. All dietitians are urged to use the chart for determining food waste in their own organizations. Charts may be typed or mimeographed, following the form presented herewith or a copy of the waste chart may be obtained from Miss Biltz. It is hoped that a large number of dietitians will report findings so that it will be possible to draw workable conclusions regarding minimum plate waste for various types of feeding units.[1] State Food Administration Section chairmen are urged to cooperate in stimulating participation in their respective states.

SURVEY OF POPULAR RESPONSE TO INFORMATION ON FOODS AND NUTRITION

As a part of the project of the Community Education Section of the American Dietetic Association, "Techniques for Motivating Certain Groups with Desire for Nutrition Information," a study was conducted by the Community Education Section of the Ohio Dietetic Association, Kathryn Weitzel, chairman, in order to learn from those actively engaged in community education in nutrition what techniques are used to stimulate interest in various individuals and groups; what kind of information elicits the largest response; what criteria are used in judging response; and what kinds of subject matter appeal to different groups.

[1] *Note:* Presumably menus for the one-week study period are to be submitted with the completed chart, as these were requested when the study was inaugurated last year.

A 50 per cent return (103 replies) was obtained from questionnaires sent to dietitians, nutritionists, and home economists engaged in various phases of community education work, with the largest response from Extension Service workers (48.5 per cent). Dietitians comprised 20.4 per cent of the total; the remaining 31.1 per cent, Farm Security agents, home economics women in business, home economists, nutritionists, newspaper columnists, lunchroom managers, and teachers.

Ways of Presenting Information to the Public. The method of presenting information to the public was to some extent controlled by the method of approach inherent in the type of work in which the individual was engaged, *e.g.*, the dietitian made more use of the individual conference, the extension worker used classes and discussion groups, etc. There was rather wide divergence, however, in the use of the various media of interpretation. As a group, nutritionists made more universal use of the various means of presenting information; this was also true of the majority of extension workers and Farm Security agents. Dietitians made limited use of pamphlets, posters, cartoons, food models, and movies; while home economics women in business, home economists, teachers and lunchroom managers reported widely varied use of the different methods.

Criteria for Judging Results of a Campaign or Project. Seventy-three of those responding to the questionnaire (70.9 per cent) said they had used some criteria for judging the results of a project or campaign. These were of three kinds: general criteria, criteria applied during a course, and criteria applied following termination of class or project.

Under general criteria were listed: improvement in family living as observed by professionally trained people, such as changes in food habits, home situation, food preparation, grocery purchases, better gardens, more food conserved; physical improvement noted in children in school lunch projects; better selection of meals by those eating in cafeterias; altered attitudes and conditions in school lunchrooms.

Under criteria applied during a course were: attendance and continued interest of class members; discussion, including questions asked and information sought; contribution of information and personal experience; requests for subject matter and printed material; work accomplished by adults, including completion of project; grades obtained and work accomplished by children.

Under criteria applied following termination of a class were: reports by group leaders; and oral and written reports by individuals who attended the class.

Of the 73 persons who had used some criteria for judging results of a project or campaign, only 43 gave specific estimates as to the percentage of response which they considered satisfactory. These showed a wide range, from 5 to 85 per cent; the average for the whole group, however, was 38 per cent. There appeared to be a direct relationship between the percentage of response received and the interest of the group contacted. Timing, frequency, and the "personal touch" have a direct bearing upon the success of methods for evaluating results.

Subject Matter on Which People Seek Information. A direct relationship was noted between the type of nutrition education work in which the individual was engaged and the rating she gave the subject matter on which people sought information from her. As the largest number of persons responding to this question were extension workers it was not surprising that food preservation was given the highest rating of all subject matter. Food selection for good nutrition was rated next in importance, then cookery methods, family meal planning, recipes, meal plans for special occasions, food habits of children, lunch-box suggestions, rationing, marketing, and the lowest rating, the feeding of infants.

Most Effective Means of Securing Interest in a Project. In summarizing data and comments of those reporting, five main points were emphasized as necessary to secure interest in information about foods and nutrition:

1. The information offered to an individual or group must fill a need. The outstanding motivation is self-interest.
2. The person offering the information must know his subject matter so well that he can vary it almost endlessly to meet the wishes and needs of the audience, must be sensitive to the response of the audience (of one or more) so that subject matter can be changed to suit the requirements of the situation almost before the need is felt.
3. A speech alone is not enough. All kinds of teaching aids such as motion pictures, participation in action, charts, etc. have been found useful and important.
4. A goal, such as a definite accomplishment or an improvement in a situation or condition, provides a means by which a person can measure the importance of the project to himself.
5. The use of long words, difficult terms, a scolding attitude, or deadly seriousness is to be avoided. Simple, clear explanations with a light amusing touch are recommended.

Current Comment

TECHNIQUES FOR MOTIVATING A DESIRE FOR NUTRITION EDUCATION

ETHEL AUSTIN MARTIN

Director, Nutrition Service, National Dairy Council

The Community Nutrition Section of the American Dietetic Association developed its section meetings, at the recent annual conference, on the hypothesis that one picture is worth ten thousand words in presenting an idea or driving home a point. Two full sessions were devoted to demonstrations and displays of specific techniques and tools designed to motivate lay groups with a desire for nutrition information. Dr. Marietta Eichelberger was largely responsible for arranging the program with the assistance of Helen E. Walsh, chairman of this section.

A wide variety of agencies and types of programs were represented at the two section meetings and a range of activities was covered which satisfied the needs of large and interested audiences. It was agreed that special effort must be made to appeal to as yet unreached groups and that this may be done by adapting approaches and techniques to those particular groups.

Simple Food Demonstrations. The nutrition service of the American Red Cross was cited as a pioneering effort in nutrition education following World War I. Melva Bakkie, director of Nutrition Service, American Red Cross, introduced two projects which have been conducted successfully in the present war period. Both required ingenuity and determination effectively to reach special groups in particular need of assistance. They provided meal planning and food buying helps to women of limited means in their own homes and women war workers who have little time for shopping or housekeeping.

Frederica Beinert, director of Nutrition Service, Chicago Chapter of the American Red Cross, demonstrated two successful methods of reaching homemakers as follows:

1. Victory food "meetings" in a settlement house kitchen. This method represents a suitable approach when women "come to get the teaching." Under the simplest of conditions women are taught a few helpful facts about nutrition while at the same time a good meal is prepared or a few simple dishes are demonstrated.
2. Simple food demonstration in a home kitchen. A lay leader conducts the demonstration for seven neighbors. This method represents the culmination of a plan for training natural lay leaders from different neighborhoods, who in turn invite other women to their own kitchens for specific help on meal planning and preparation.

For these demonstrations a blackboard prepared merely by painting heavy poster board with blackboard paint was shown as the device for women to use in their own kitchens for recipes, menus, and other memoranda. Such methods as these approach the goal of teaching nutrition "to the last house on the street."

Nutrition Helps for War Workers. Mrs. Marion Sniffen, director of Nutrition Service, Pacific Area, American Red Cross, described a project designed particularly to assist newcomers to West Coast areas with food and nutrition problems. Demonstrations in grocery stores were found to be the best means of helping women who are working. The demonstrations cover such subjects as: packing good lunches, making milk desserts, uses for soybean flour, and the steaming of two or three vegetables in one pot.

Grocery store demonstrations have been carried on one day a week for four months. Red Cross Nutrition Aides confer with women as they stand in line to pay the cashier, and each is invited to see the demonstration being conducted by a nutritionist and a Nutrition Aide in a booth at the front of the store. Following the demonstration, questions may be asked regarding recipes, meal planning, or food values, and the prepared foods sampled. As a result of the store project an itinerant nutrition instructor service to Red Cross chapters has been inaugurated in the Pacific Area to provide teachers for neighborhood classes.

Drama Motivates Interest in Nutrition. Jessie McQueen, home service counsellor, American Gas Association, described the present activities of utility companies in motivating interest in nutrition education and stimulating a desire on the part of women to attend lectures and demonstrations. She described and displayed specific materials which have been developed as essential features of successful programs, such as:

The *Road Show*, or the two-lesson course *Look Who's Cookin'* was a project to teach meal planning to high school students in assembly periods. It was dramatized by means of ribbon pulleys in a number of ways. Blow-up photographs were used to arouse interest in the "basic 7." A huge demonstration chart showed the difference between a poor meal and a good meal. A demonstration of good lunches used intriguing properties consisting of an oversized lunch-box with foods built to scale to fill it. Still another attractive project was built around the "Gremlins—Hasty, Wasty, and Sly," devised to arouse interest in wise planning of meals and conservation of foods.

Colored slides to be used with a portable projector on a portable screen were demonstrated as an effective means of teaching protein alternates.

In answer to questions regarding the availability of the properties demonstrated, Miss McQueen indicated that they may be obtained in the particular area in which the utility unit which developed the properties is located. Two booklets were displayed, available to the public from the American Gas Association, New York, which amplify the above brief information, namely: *Home Service Program for Young America*, and *Visual Aids Wartime Use in Home Service Demonstrations*, priced at 10 cents each. The wartime cooking course for Young America, *Look Who's Cookin'*, is available from the Southern California Gas Company.

Nutrition Education in a State Health Department Program. Dorothea Nicoll described the over-all plan for nutrition activities in the State Department of Health, Massachusetts. The program, under the Division of Child Hygiene, is directed by Miss Nicoll. An analysis of the more important groups to be reached was made as follows: first the professional leaders, since their assistance was essential; then the homemakers, because of their tremendous influence on their families, and finally, school age children and industrial groups to be reached by special programs. Photographs, food models, demonstrations, were media mentioned by Miss Nicoll as useful in reaching the public.

Of special interest to the audience was a shallow plywood box, with a hinged cover which can be closed, carried as a suitcase. When open, the box serves as a miniature demonstration platform—the lid for a poster or written message, the lower portion as space for food models or actual foods. This device is particularly adaptable where there is little space and no facilities for preparing or displaying materials or meals.

Nutrition Activities of a State Extension Service. Annette Young, State Extension Service, Illinois, described several methods found effective in motivating interest in nutrition. These are included in the paper immediately following in this JOURNAL.

Nutrition Education Through a Department of Public Welfare. Mrs. Felisa J. Bracken, nutritionist, Department of Public Welfare, Baltimore, described an activity initiated by a librarian who discovered, by taking books in a huckster's wagon into poor neighborhoods, that people want books on foods. Mrs. Bracken indicated the need for simple, attractively illustrated books and suggested the desirability of handing out pamphlets sparingly as though they are very precious. (*See* p. 765, this JOURNAL, December 1944.)

Analyzing Nutrition Education Methods. Dorothy Ridler, nutritionist, Cleveland Welfare Federation, reported the results of a questionnaire sent by the Community Education Section of the Ohio Dietetic Association to dietitians, extension workers, and others working with the public. (*See* p. 24 of this JOURNAL.)

A Fellowship in Applied Nutrition. Mrs. Beth Bailey McLean, head, Home Economics Department, Swift and Company, described an interesting demonstration in applied nutrition conducted in Canada and financed by the company. (*See* p. 762, this JOURNAL, December 1944.) The booklet *An Experiment in Applied Nutrition for Canadian Community* summarizes this interesting project, and can be obtained from Swift and Company, Chicago.

Extension Points a Way of Teaching Nutrition. Mary L. Collings, Senior Home Economist in charge of Field Studies and Training, U. S. Extension Service, described observations and investigations of nutrition education methods, further details of which will be published later.

It is often said, "We don't reach the people we need to reach." It was apparent from the foregoing demonstrations that reaching the "unreached" group is a matter of analyzing the problem correctly, adapting the approach and materials to the problem, and then continuing to adjust and adapt the approach as results are observed and evaluated.

MOTIVATION OF COMMUNITY GROUPS IN NUTRITION EDUCATION

ANNETTE YOUNG

Extension Nutritionist, University of Illinois

For many years, Home Economics Extension Service in Illinois has been reaching community groups through demonstrations, discussions, exhibits, local leader training schools, menu planning clinics, refresher courses in nutrition, and food preservation, as well as through other recognized media of adult education. A few illustrations will be cited of methods and techniques used recently.

In one county that had almost no trained personnel to promote a school lunch program, it was decided to start with the group most responsible for the success of a school lunch—the cooks. The home adviser and county superintendent of schools in Jefferson County thereupon arranged

This valuable new booklet available FREE in quantities. Use coupon!

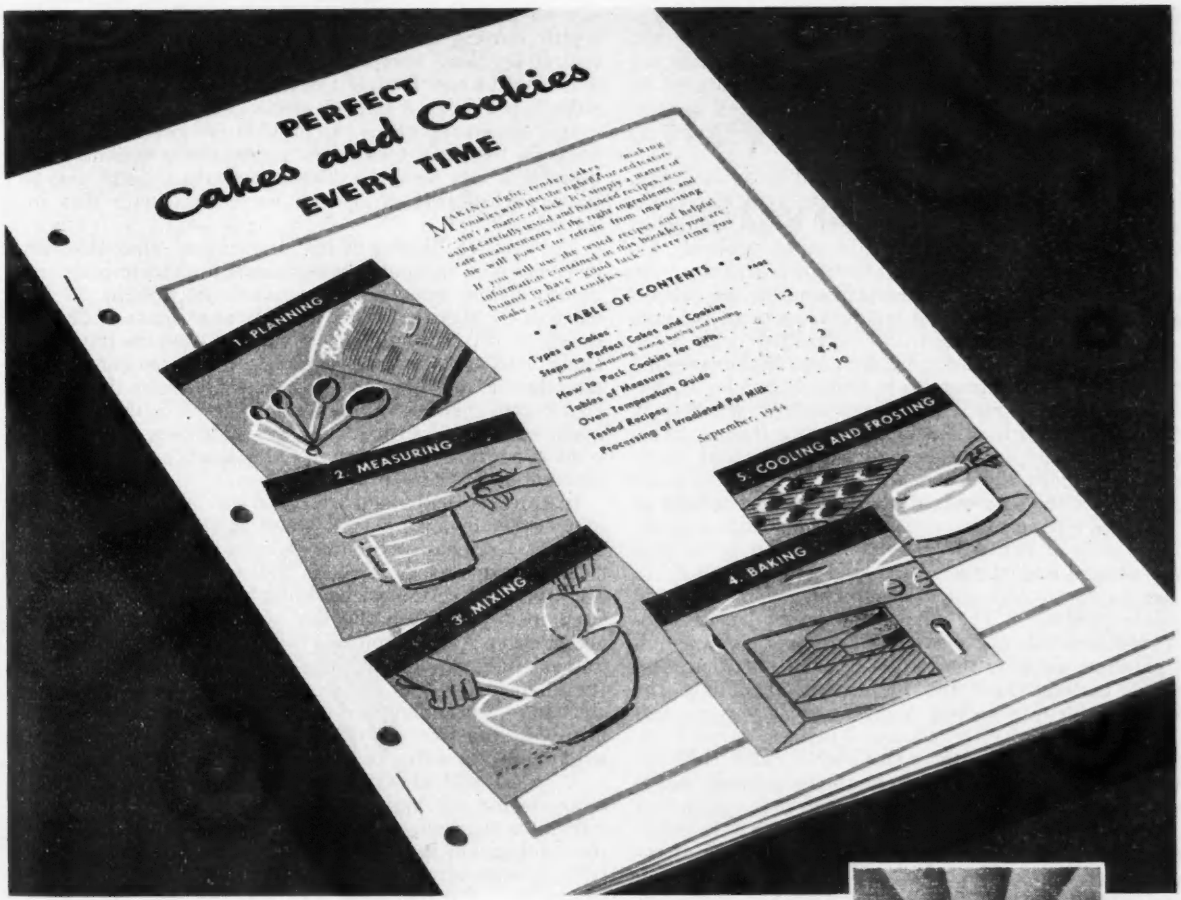
IF you plan menus or teach a foods laboratory class, this new booklet should prove extremely helpful to you.

It includes such basic material as: definitions of the different types of cakes, explanations covering the essential steps in cake and cookie baking, temperature guide, table of measures, and six full pages of fail-proof recipes.

These Pet Milk recipes demonstrate how you can make delicious cakes and cookies with less butter, less sugar, and fewer eggs.

To make it extra-practical, the booklet is printed on 8½ x 11″ sheets punched to fit a standard ring binder.

Fill in and mail coupon today.



Home Economics Dept., PET MILK COMPANY, 1450-a Arcade Bldg., St. Louis 1, Missouri

Please send me, free of charge,_____ copies of "PERFECT CAKES AND COOKIES EVERY TIME"

I plan meals for_____ (name of institution)

I teach nutrition in_____ (where?)

*Name*_____ *Title*_____

*Street*_____ *City & State*_____

(*Fill in completely. Offer limited to residents of Continental U. S.*)

an all-day training school for school lunch managers and cooks, to be conducted by an extension nutritionist.

Another successful technique for arousing interest of a lay group is to secure the participation of each person in determining the adequacy of his diet. A cardboard measuring device originated by the extension and resident staff in home economics at the University of Illinois enables children as well as adults to determine the adequacy of their diets in terms of nutrients, without any mathematical calculations. This device has clearly demonstrated that individuals are more interested in working out their own food needs than in considering the generalities of an adequate diet.

Another method of interesting people was tried in McLean County through the efforts of the county nutrition committee under the chairmanship of the home adviser. This method, based on food demonstrations, depended on pantomime and posters rather than the spoken word. The demonstrations were given on successive Saturdays in a prominent store window. Three girls from 4-H Clubs and home economics classes were chosen for each demonstration; two gave the demonstration and the third synchronized the activity through a series of large posters that explained every procedure. Printed materials were distributed and a home economist was available inside the store for further information. Several communities are planning to use the same method to develop interest in well-planned lunches. The value of this type of demonstration is that it attracts interest and reaches those who ordinarily would not attend a meeting.

Another method was one which proved to be successful with professional groups in the community. Many elementary school teachers, both rural and urban, had failed to show an interest in nutrition education, probably because they felt it was not part of their own program. In Grundy County, the county superintendent of schools became interested in a school nutrition program through the efforts of the county nutrition committee and an extension nutritionist. He decided that the teachers needed to work out their own program in order to develop enthusiasm for carrying it out. To awaken interest, a survey of the eating habits of the school children was made. (This county is wealthy in the agricultural sense and many believed, therefore, that there was no nutrition problem.) The results of the survey indicated that out of a total of 478 children, 9 per cent were eating a recommended breakfast and only 5 per cent a recommended lunch. The county superintendent then appointed a committee of 13 teachers to work with a nutritionist on plans for a nutrition education program. The nutritionist presented the findings of the survey to the committee and reports of research with children, showing the results of good nutrition, also nutrition materials suitable for schools, including the *Suggestive Guide for Teaching Nutrition in Illinois Elementary Schools* issued by the Illinois Nutrition Committee. After due consideration, the committee decided that the information should be graded to be of the greatest assistance to teachers. Since few graded materials correlating nutrition with other subjects in the curriculum were available to rural school teachers in Illinois, the Extension Service developed its *Health Unit in Nutrition*. With a local committee participating, the next move was to present the work at the teachers institute. The nutritionist explained the program, and the teachers were given an opportunity to submit their work to other teachers in the county. As a result, the teachers concluded that nutrition education need not be isolated from the rest of the curriculum nor make too great demands on time. Many teachers, too, expressed a desire for more work in nutrition during their in-service training.

In summarizing these illustrations, it is important to point out that individual and group participation under trained supervision was the chief factor in motivating community groups in nutrition education.

NUTRITION AND DIET THERAPY SERVICE IN A VISITING NURSE ASSOCIATION

DOROTHY B. HACKER

Nutrition Consultant, Visiting Nurse Association, Detroit

Our Nutrition and Diet Therapy Service has just completed its eighth year. Recently there have been several inquiries regarding the service, probably due in part to the limited number of physicians available for the care of civilians, and to crowded hospital facilities. The objectives are to provide nutrition consultant services to the nurses of public health staffs and diet instruction to patients in their homes. By such means hospital space and the time of the busy physician can be conserved.

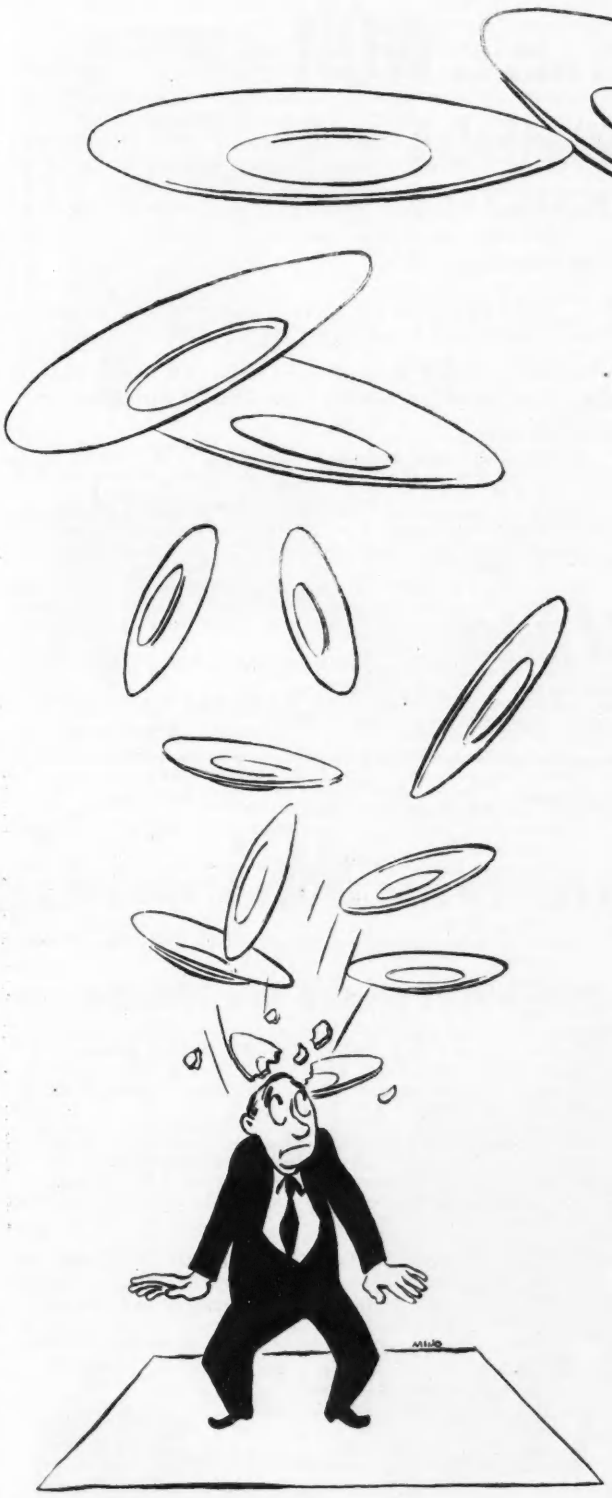
When the service was established, the Medical Advisory Committee of the Visiting Nurse Association recommended that the nutrition consultant's case load be confined generally to patients on therapeutic diets. In most public health nursing associations patients needing help with budget problems comprise the greater proportion of the nutritionist's case load, but in Detroit another agency was already providing a budget service. However, the committee saw an opportunity to provide diet instruction in the home for the patient who does not require or does not wish hospitalization, and who often is ambulatory and able to continue his work if he can secure adequate diet instruction.

The Detroit Visiting Nurse Association offers this diet instruction on an hourly basis, just as it offers nursing and physiotherapy service. The patient may come to the office or the dietitian visits the patient at home. The request for diet instruction usually comes from the physician along with the diet prescription. When patients apply directly, the dietitian in each instance consults the physician before she sees the patient. The fee is on a sliding scale, which makes the service available to patients of all economic levels. The majority of patients are referred for diabetic diets—measured or weighed.

Instructing the patient who is on his usual daily routine offers every opportunity for adapting the diet to his food habits. Regional food customs must be taken into consideration as well as religious and cultural diet patterns. Knowledge of certain dishes and the incorporation of desired foods are often the key to securing the patient's cooperation. In Detroit one is especially conscious of the varied working hours which affect not only the worker but the homemaker. As the worker is transferred from one shift to another, his schedule of diet and insulin must be adapted, while the "day off" requires adjustments for those working on the swing or night shifts.

A typed diet sheet with spaces wherein to list the amounts for the individual patient is used. This individualizes the diet, yet provides the larger proportion of the information in print, which in itself is an aid to the patient, especially those who do not read handwritten English easily. For the diabetic patient the sheet includes a list of 5 and 10 per cent vegetables and substitutes for two eggs, one slice of bread, one teaspoon of butter, one glass of milk, and a serving of fruit yielding 10 gm. carbohydrate. Thus the patient is provided with a skeleton menu and the information necessary to vary it.

For the patient with language difficulties the use of food models is most helpful. Usually there is an interpreter, preferably some member of the family, available to help at



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mealtime. However, it is surprising how much information this type of patient can absorb and use if left entirely dependent upon himself. In the home one can supplement words and gestures with actual foods and dishes the patient will use. At this time, too, the use of familiar food combinations is especially important.

The patient who eats in the restaurant offers a real challenge to the instructor. If he is the type who unequivocably accepts the limitation of the physician's prescription, the adjustment is comparatively easy. But if he rejects these limitations the problem of selecting foods in the restaurant seems insurmountable. So he must be helped to consider first the liberality of the diet, and then to face its limitations. Using this usual food intake as a basis, the dietitian gains some idea of the foods available where he generally eats.

The number and frequency of visits depend upon the needs of the patient. After the first visit a copy of the diet is sent to the physician with a report. Telephone or written reports are also sent to him following each subsequent visit to the patient and at all times the physician is consulted regarding particular problems which arise. When the patient seems to understand the diet sufficiently, the dietitian talks with the physician to see if she is to continue to check the diet or whether he will assume this responsibility. As time permits, follow-up visits are usually made in about 6 weeks, 3 months, and then at 6-month intervals after the patient is dismissed as an active case.

The Nutrition and Diet Therapy Service has been extended to small hospitals not having a dietitian, at the request of physicians already using the service for patients in the home. In these instances the dietitian visits the patient in the hospital and instructs him regarding his diet. A copy of the skeleton menu and a list of the patient's food likes and dislikes are given to the nurse in charge of the ward. Upon making the first visit to a new hospital the dietitian usually asks permission to discuss the diet with both the person planning the menus, and the cook, so that she may interpret the diet and answer questions. She also makes an effort to visit the patient occasionally at mealtime in order to see the trays he receives. The patient who is not too ill is asked to plan some of his own meals preparatory to his return home so that the dietitian may check these. Whoever prepares the meals at home is interviewed at this time and given an opportunity at least to plan some menus which the dietitian checks. Despite all this, many questions usually arise when the dietitian makes her first visit after the patient returns home.

When nursing care is required the dietitian aids the nurse in planning the diet and instructing the patient. Thereafter the nurse assumes the responsibility of checking the diet and giving further instructions when she visits the patient. She reports periodically and consults the dietitian when necessary, regarding further information and suggestions. When nursing care is no longer needed, the case is assigned to the dietitian.

The Detroit Visiting Nurse Association covers an area of 400 square miles, which sometimes makes it difficult to answer calls quickly when several new cases are reported in widely separated areas. To meet this problem intensive training in diet therapy is given to at least one nurse in each substation, by means of class work and home visits, followed by tests of her ability to give diet instructions. As a result, a nurse in each area is qualified to make a call should the dietitian be unavailable. Usually the second call is made jointly by the nurse and dietitian and thereafter the dietitian assumes the responsibility for the case.

In addition to diet instructions, either the dietitian or the visiting nurse gives instruction on the technique of insulin injection or testing the urine for sugar at the request of the physician.

The Nutrition and Diet Therapy Service of the Detroit Visiting Nurse Association offers service to all private physicians and their patients in this area. The gradual growth of the service indicates that it has proved helpful both to the busy physician and his patient. It is interesting as well as gratifying to note that the best publicity for the service has come through physicians who suggest its value to others. Inquiries from other cities, too, usually result when these physicians meet their colleagues at medical meetings.

APPOINTMENTS AND PROMOTIONS, ARMY MEDICAL DEPARTMENT DIETITIANS[1]

The following Medical Department Dietitians were appointed in the Army of the United States during November 1944:

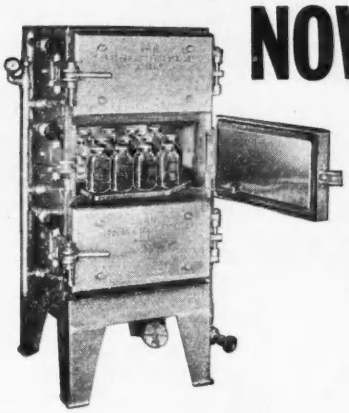
Ashley, Dora Lois: Indiana Univ.; Mayo G. H., Galesburg, Ill.
Bernholtz, Bonnie Nadine: Univ. of Nebraska; Fitzsimons G. H. and S. H., Cp. Carson.
Blank, Eleanor Jane: Purdue Univ.; Western Pennsylvania Hosp., Pittsburgh.
Brown, Ellen Fern Tyner: Oklahoma A. & M. Col.; Borden G. H., Chickasha, Okla.
Burke, Mary Margaret: Hunter Col.; Kennedy G. H., Memphis.
Cropper, Ernestine Cornelia: Mississippi State Col. for Women.
Dobbins, Mary Evelyn: Winthrop Col.; Charlotte Memorial Hosp., N. C.
Doll, Glennys Ethel: Kansas State Col.; S. H., Cp. Grant, and Gardiner G. H., Chicago.
Ericksen, Grace Karyl: Univ. of California at Los Angeles; St. Mary's Hosp., Rochester, Minn.
Gay, Kathleen Ellen: Univ. of New Hampshire; Oliver G. H., Augusta, Ga.
Gillan, Mary Walker: Hood Col., Frederick, Md.
Goodale, Harriet Jane: Hiram Col., Ohio.
Helfand, Margery Zelda: Hunter Col.
Hendrickson, Mary Elna: Iowa State Col.; North Carolina Baptist Hosp.
Hixon, Alice Evelyn: Milwaukee-Downer Col.; S. H., Cp. Grant.
Hopkins, Rosemary Josepha: Univ. of Wisconsin; Mayo G. H.
Hutchison, Jeanne Madeline: Oklahoma A. & M. Col.; Oklahoma Univ. Hosp.
Johnson, Anita Carolyn: Michigan State Col.; Cook County Hosp.
Koshetz, Rose: Columbia Univ., New York.
Miller, Ellen Christine: Univ. of Connecticut; Massachusetts G. H.
Moe, Margaret Borghild: Univ. of Minnesota; New York Hosp.
Nelson, Helen Claire: Univ. of North Dakota; Borden G. H.
Ouly, Angela Beth: Marywood Col., Scranton, Pa.
Peters, Mary Marguerite: Ohio State Univ.; Gardiner G. H.
Stiglmayer, Theresa: New York Univ.
Trant, Ann Rosemary: Purdue Univ.; Mayo G. H.
Ulrich, Virginia Louise: Santa Barbara State Col.; S. H., Cp. White, Ore. and S. H., Ft. Lewis, Wash.
Walsh, Dorothy Margaret: Marymount Col., Salina, Kans.
Ward, Marguerite Eileen: Marywood Col., Scranton, Pa.; Kennedy G. H.

The following Medical Department Dietitians were promoted during the month of November 1944. They are on duty in Army hospitals in this country and overseas.

Second Lieutenants to First Lieutenants

Barrack, Grace Edith, R-1086
Becker, Genevieve Beryl, R-931
Blacher, Sylvia Thelma, R-615
Bolton, Betty J., R-473
Bosshard, Beth Alice, R-702
Brenneman, Avanelle Louise, R-1141

[1] Due to an error made in the JOURNAL Office the training courses for two dietitians listed in the November JOURNAL were incorrectly stated. These should be: Vera Dolores Gaasch University of Washington Administrative Course, Seattle; and Caroline Esther Van Mason, likewise.



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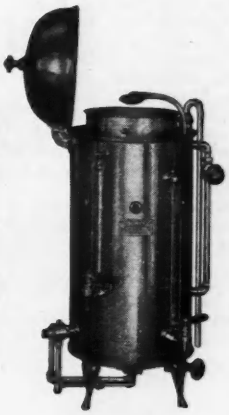

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Duffy, Winifred C., R-1219
Edwards, Gladys Thompson, R-62
Edwards, Lena Marguerite, R-276
Emmons, Elizabeth Jane, R-710
Gay, Flora Belle, R-253
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Ragsdale, Eloise, R-783
Rajkowski, Rosemary K., R-898
Ramsey, Ruth Arline, R-893
Scripture, Charlotte R., R-1079
Stewart, Rosemary, R-419
Terrell, Mary R., R-1166
Trulson, Martha F., R-278
West, Mary Joyce, R-1153
Whalen, Marion C., R-74

First Lieutenants to Captains

Biggs, Margaret Velma, R-392
Boyett, Dorothy E. A., R-65
Chandler, Catherine Sarah, R-324
Davis, Mary Casper, R-387
Ford, Mary Louise, R-578
Rampley, Martha Ruth, R-161
Smith, Grace, R-437
Ver Murlen, Cathryn R., R-629

Thiamin and "Suspended Animation"

To the Editor:—In the September number of your journal there was published an article by Dr. Daniel Melnick entitled "A Critique of Values Suggested as Thiamin Requirements of Man." This article, a most commendable appraisal of the literature by a critical and thoughtful worker in the field contains, nevertheless, a misleading inaccuracy which I should like to take this opportunity to correct.

In discussing a preliminary report of the thiamin deficiency studies of Najjar and Holt, Melnick points out that the subjects of the study, although reported as "sedentary," were examined by Jolliffe who described them as being in a state of "suspended animation." From this Melnick deduces an exceedingly low caloric intake and calculates the thiamin intake in terms of the supposed calories ingested.

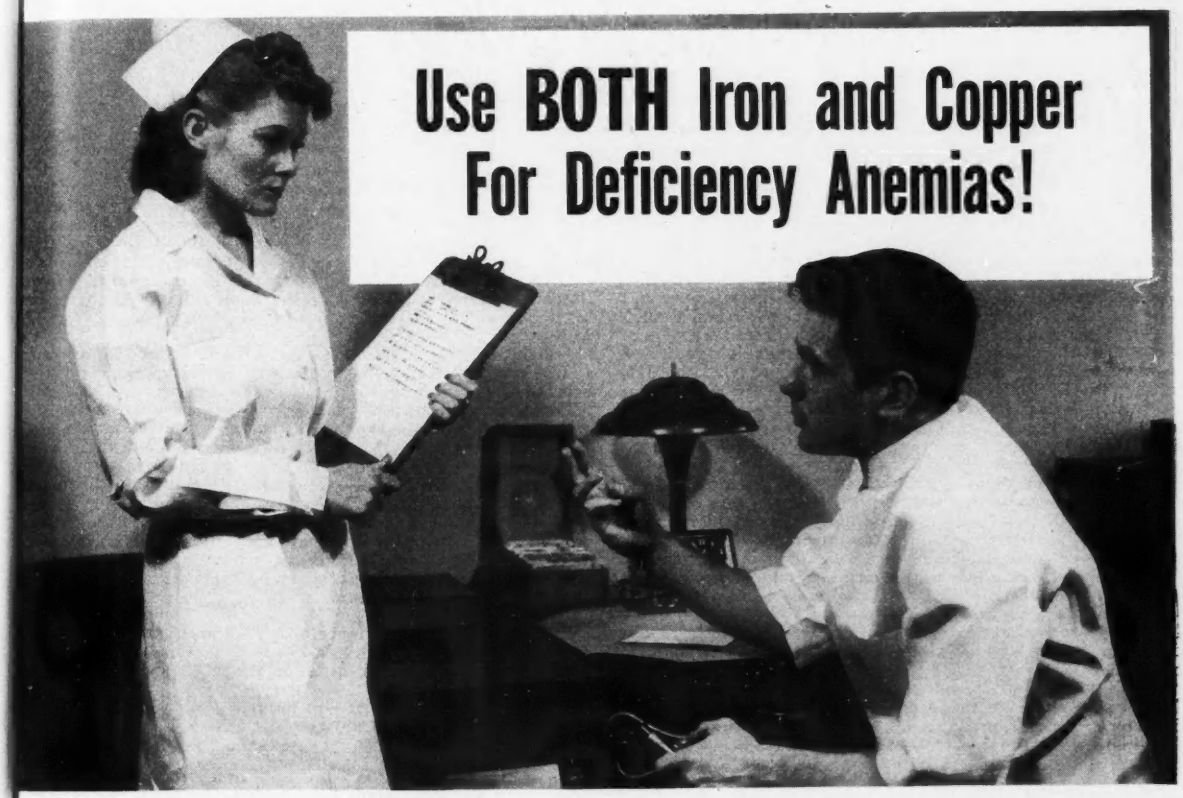
The writer was present both when Dr. Jolliffe examined the subjects and when he made the remark in question. The subjects were inmates of a state institution who were ambulant throughout the study and engaged in such mild activities as making beds, cleaning and sweeping. On the occasion of Dr. Jolliffe's visit, however, they were put to bed to facilitate his neurological examination. It is possible that he gained the impression that they were habitually kept in bed, which was certainly not the fact. They conversed freely with Dr. Jolliffe during his examination. His comment, made on a later occasion at an informal dinner discussion group, was obviously facetious and not intended for direct quotation. It is regrettable that Dr. Melnick took it quite so literally.

The actual figures for the thiamin intake of these subjects, expressed in terms of 1000 calories, have been presented and discussed in a recent review by the writer (Federation Proc. 3: 171, 1944), a publication which was not available at the time Dr. Melnick's article was written.

L. EMMETT HOLT, JR., M.D.
Johns Hopkins Hospital, Baltimore

The Future of Nutritional Research

The nutrition investigator now has interest in more details than anyone of three decades ago ever dreamed. We can enumerate fairly accurately the kinds of investigations which must be completed in order to provide a comprehensive knowledge of nutrition, a branch of learning which forms a part of the science of biochemistry. If we were to try to segregate those items which are indispensable to a complete understanding of the attainment of the objective of securing the optimum state, or the highest perfection of nutrition in any species, we should arbitrarily have to restrict our definition of nutritional research to inquiry concerning: The number and natures of the amino acids, fatty acids, carbohydrates, inorganic substances now loosely grouped together for convenience under the term vitamins. The occurrence of these nutrients in plant and animal products. . . . The stability of each of the essential nutrients under such conditions as are necessary in the harvesting, storage, and handling of foods and their preparation for serving. . . . The influence of the diet, whether of constant character or changed at successive intervals, on the character and abundance of the microscopic flora and fauna of the alimentary tract, and its relation to the health of the host. The relation of stage of maturity in plants to their nutritive value. The interrelations between the various nutrients by which they exert a synergistic action or otherwise affect the biochemical behavior of each other. The nature and extent to which any essential nutrient may arise through the synthetic powers of the body provided the necessary precursor is provided. The effect of the several indispensable inorganic elements and the forms in which they are ingested on the absorbability of each from the alimentary tract. The symptoms which make manifest to the eyes of the trained observer the existence of deficiency of an essential nutrient in the diet of man or animal. . . . The further development of laboratory technics by means of which foods may be analyzed for their contents of essential nutrients. . . . The influence of light, temperature, humidity, and atmospheric pressure on the body's need for nutriments, and the optimum composition of the diet under special environmental conditions. The relation of the diet to the development of immunity to disease. The minimal needs of the body under specified conditions for each of the essential nutrients and the determination of whether an excess of any nutrient over the minimum physiologic needs affords a factor of safety. . . . The conscientious and sensitive biochemist with interest and enthusiasm for nutrition studies will . . . not rest until he has explored, by every device of which he can think, the processes of nutrition during the phases of assimilation of absorbed nutrients into functioning tissues, the chemistry of intermediary metabolism, and the disposal of the end products of metabolic activity.—*McCollum, E. V.: Nutrition Reviews 2: 321, 1944.*



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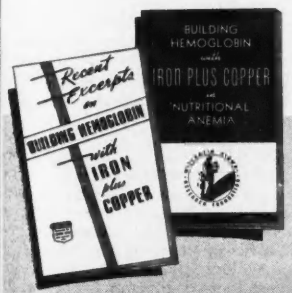
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Book Reviews

Proteins and Amino Acids: Physiology, Pathology, Therapeutics. A monograph prepared under the supervision of the Scientific Staff of The Arlington Chemical Company, Yonkers 1, New York, 1944. Paper. Pp. 189. For distribution to the medical profession.

While written in a fairly elementary and simple style, understandable even to those whose courses in physiological chemistry antedate the second edition of Sherman's *Chemistry of Food and Nutrition*, this little monograph succeeds in being a very comprehensive, up-to-date reference for the general practitioner and for the dietitian. In fact the authors have accomplished a much needed service in simplifying and making highly practical a subject of the utmost importance at present. Commendable, too, is the excellent coverage of really current literature, through June 1944, according to the Preface.

The book is divided into four parts: Normal Protein Metabolism, Altered Protein Metabolism, Clinical Conditions Associated With Protein Depletion, and Correction of Protein Depletion. Noteworthy features include: a table showing the chemical structure of each of the 24 known amino acids, one listing the essential and the supposedly "non-essential," and others the amino acid composition of 22 forms of protein and the physiologic normals of nitrogen metabolism. Especially useful at present are the discussions of the clinical conditions associated with protein depletion, namely: nutritional edema, burns, ulcers, and shock. Extensive references to the literature are appended to each chapter and a thorough index completes this well-finished work.

It is understood that copies of this monograph have been distributed to hospitals, and are therefore available in hospital libraries.

The Treatment of Peptic Ulcer. By George J. Heuer, M.D., assisted by Cranston Holman, M.D., and William A. Cooper, M.D. Philadelphia: J. B. Lippincott Company, 1944. Cloth. Pp. 118. Price $3.

While concerned largely with the surgical treatment of peptic, duodenal, and gastric ulcer, as practiced by a noted authority in the field of surgery, this book demonstrates a soundly conservative medical approach: of 732 patients not previously subjected to operation, 651, followed up to 10 years, have not thus far been subjected to operation.

The medical treatment is outlined in great detail. Ambulatory medical treatment is fitted to patients with severe and less severe symptoms. A six-feeding and a three-feeding gastric soft diet are included; printed diet sheets, prepared by the Dietary Department, are given patients. "Patients are never discharged, but return year after year to our follow-up clinic." It is believed that 60 per cent of these patients attempt to, and within reasonable limits, follow the regimen—the more intelligent are more likely to follow instructions. Hospital medical treatment, in uncomplicated cases, differs little except that it is carried out with the patient in bed. Other than the above-mentioned, there is little in the book of direct interest to the dietitian. With regard to the Meulengracht diet, the authors comment that while ulcer healing is impaired by an insufficient diet, and patients may stop bleeding on being given food, yet they have observed that this has immediately been followed by a devastating hemorrhage. Food, too, may dislodge a clot.

The authors appear to believe that "the added nervous strain and exhaustion and probably the irregular eating habits and excessive smoking and drinking incident to war are responsible for an increase in peptic ulcer," both in civilians and the armed forces.

Restricted Quantity and Cost Budget for Maintenance of Families or Children. Prices for San Francisco, March 1944. Issued by the Heller Committee for Research in Social Economics, University of California. Berkeley: University of California Press, 1944. Paper. Pp. 58. Price 50 cents.

This is the current issue of a budget at the level of community maintenance which was first published in the spring of 1932 and has been priced annually since that time, along with the Heller Committee budgets for other income levels. It attempts to define in terms of the items and amounts required and their prices, the content and cost each year of a maintenance standard which will preserve the health and efficiency of a very low-income family and enable its children to grow up among their neighbors without being stigmatized. At the same time, the budget attempts to stay within the limits of the support that a welfare agency may reasonably be expected to provide. It seemed desirable to change the title this year from *Quantity and Cost Budget for Dependent Families or Children* to its present designation so that it can be recommended for use by families "too proud to ask public assistance but struggling along on about the same level of maintenance."

The food budgets were extensively revised in 1943. Further changes this year have been limited to those which are mandatory because of changes in food supply. As stated in the Introduction, the chief difficulty has been presented by scarcity of cheese and its high ration point value. High cost and limited supply of fresh fruits and vegetables are also a major problem. The budgets of 1944 still meet the nutritional standards set up by the National Research Council in 1941, but the margin of safety would not allow for undue wastage of nutrients in food preparation.

Quick Freezing. By Anne Pierce. New York: M. Barrows and Company, 1944. Paperboard, circla-bound. Pp. 83. Price $1.

This book, described as "a digest of authoritative information on quick freezing of foods for the home," apparently contains little original information. It is, however, a very convenient summary of facts and directions concerning quick-freezing available at present, arranged under the following headings: equipment, including care of the home freezer, cost of operation, utensils for preparation of foods, wrappers and containers; the refrigerated locker plant; preparation of foods for freezing; effect of freezing on nutritive values of foods; and cookery of frozen foods. A list of available bulletins on quick-freezing is appended, and numerous tables are inserted throughout the text.

Cooking for a Crowd. Prepared by the Hawaii Dietetic Association. Paper. Pp. 47. Price 75 cents; in quantities of 25 or more, 50 cents. Available from Kathleen Olding, 2751 Kahawai, Honolulu 15, Hawaii.

This interesting booklet was prepared for homemakers and others inexperienced in quantity cooking who may be called upon to prepare meals for a large number of persons. Meal plans suggested consist of an inexpensive main dish, a salad, and a simple dessert—and neither the meal plans nor the recipes are humdrum. The desserts, especially, are unusual enough to invite a trial; in fact, none of the recipes would be considered trite by the experienced cook or dietitian. All are set up in such a way as to permit inserting the amounts of ingredients necessary to increase or decrease the portion yield. Convenient tables are included giving volume content of canned goods, amounts of various foods in one pound, and quantities of food for 50 servings, and there is a list of hints for sanitary measures in large quantity cooking. As would be expected, some of the recipes are for dishes incorporating tropical foods, but on the whole the book is distinctly "American" in character.

Food Values of Portions Commonly Used. Fifth edition. By Anna dePlanter Bowes, M.A., formerly Director, Nutrition Education, Philadelphia Child Health Society, and Charles F. Church, M.D., M.S., formerly Associate in Pediatrics, School of Medicine, University of Pennsylvania. Paper. Pp. 46. Price $1.50. Copies available from Anna dePlanter Bowes, 311 S. Juniper Street, Philadelphia 7.

In this fifth edition, the book has been completely rewritten and enlarged by the senior author. As listed in the Preface, the principal changes are: (1) An increase in the number and kinds of foods listed in the various groups. The sections on bread, cereals, flours and crackers have been completely rewritten using the latest standards for enrichment of flour and cereals. (2) A recalculation of all recipes on the basis of May 1944 enriched flour data and substitution of fortified margarine for butter in many dishes as would be done at present in homes, institutions and public eating places. (3) Many new figures on mineral and vitamin values. (4) New data on the effects of various methods of cooking and food preservation on food values. (5) The latest N.R.C. recommended dietary allowances. (6) The addition of a new section giving data in units as generally purchased on approximately 200 commonly used foods.

Publications of the United States Department of Agriculture and the National Research Council issued during the past two years have been the principal bases of the revision; other facts have been provided by manufacturers of various food products and articles in scientific and professional journals. Mrs. Bowes states that much assistance was received from dietitians in hospitals and restaurants who checked sizes of portions served.

Factors affecting nutritive values, including results of recent research, are summarized in an introductory section. The table of food values has been attractively set up and is easy to read. It is hardly necessary to state that the book will be even more valuable than were previous editions.

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Current Literature

Contributed by Helen Baughman, Janet Engebretsen, and Hilda McEwen, Dietary Department, Johns Hopkins Hospital, Baltimore; Quindara Oliver Dodge, School of Home Economics, Simmons College, and Women's Educational and Industrial Union, Boston; Margaret Shatswell Price; and the Journal Staff.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 142, October 1944

*The effects of infusing glycin and of varying the dietary protein intake on renal hemodynamics in the dog. R. F. Pitts.—p. 355.

*The experimental production of a hyperchromic anemia in dogs which is responsive to anti-pernicious anemia treatment. J. E. Davis.—p. 402.

Renal Hemodynamics in the Dog. Intravenous administration of glycine in amounts sufficient to raise the plasma concentration to 20 mg. % amino nitrogen produces an increase in glomerular filtration rate and renal blood flow, and a decrease in filtration fraction and total renal resistance. The decrease in total renal resistance is largely localized in the efferent arterioles and post-arteriolar vascular bed; the afferent arteriolar resistance changes but slightly. Glycine, in amounts sufficient to elevate the plasma concentration to 60 mg. % amino nitrogen, is toxic and produces a decrease in glomerular filtration rate and renal blood flow, and an increase in filtration fraction and total renal resistance. The increase in total renal resistance results from an increase in each of the component renal resistances. An increase in the protein content of the maintenance diet increases blood flow and filtration rate, without altering filtration fraction significantly, and decreases total renal resistance. This decrease in total renal resistance is largely localized in vessels on the efferent side of the glomerulus.

Experimental Hyperchromic Anemia. Oral administration of 3 doses daily of choline chloride (10 mg. per kg.) to 5 dogs produced reductions of from 30 to 43% in their red blood cell counts. The anemias, so produced, are hyperchromic and probably the result of a depression of erythropoiesis. Intramuscular injection of adequate doses of purified solutions of liver into 3 anemic dogs caused their erythrocyte numbers to respond with increases which were marked by the seventh day, and approximated normal after 4 weeks. These responses occurred in spite of continued choline administration. Stomach, U.S.P., fed in daily doses of 20 gm. to one mildly anemic dog, caused a return of red cell number and hemoglobin percentage to normal within 12 days, in spite of continued choline feeding. Oral administration of atropine sulfate 3 times daily to one anemic dog caused the red cell count to return to normal in 4 weeks in spite of continued choline feeding.

AMERICAN JOURNAL OF PUBLIC HEALTH AND THE NATION'S HEALTH

Vol. 34, August 1944

The cooperative health program of the American republics. G. C. Dunham.—p. 817.

*Wartime nutrition in England as a public health problem. H. M. Sinclair.—p. 828.

*Staphylococcus and streptococcus carriers. Sources of food-borne outbreaks in war industry. V. A. Getting, A. D. Rubenstein and G. E. Foley.—p. 833.

Salmonellosis as a public health problem in wartime. A. D. Rubenstein, R. F. Feemster and H. M. Smith.—p. 841.

*Food poisoning caused by hemolytic staphylococcus in a defense plant. B. J. Slater and J. L. Norris.—p. 854.

Milk and milk products. Milk, cream, butter and cheese. Laboratory section. Report of the Standard Methods Committee on Milk and Milk Products.—p. 894.

Wartime Nutrition in England. During the most critical war period the food policy was originally, and still is, designed to save shipping. Thus the population has been kept on the lowest diet compatible with health. The determination of the incidence, cause, severity, and distribution of malnutrition in England has been the purpose of the Oxford Nutrition Survey. Probably the most serious problem is ascorbic acid, since dietary intakes of about 20 mg. a day are common. There is some evidence of deficiency of vitamin A, iron, and calcium, and possibly of animal protein and fat, but little or no evidence of deficiency of total protein, thiamin, or riboflavin. The margin of safety must be very small, however. Biochemical methods to determine adequacy show great promise, and a number of different estimations can be done upon a small quantity of blood, but the interpretation of blood analyses is very difficult. At present, none of these biochemical methods has proved practicable and valuable for rapid public health purposes and urine analysis cannot provide any useful information. Tests of function are disappointing. A clinical examination including biomicroscopy, a medical history, and a dietary history is essential in any proper nutrition survey. The tools that the medical nutritionist can or should offer to the public health officer are few. We need more.

Food-Borne Disease. Food-borne outbreaks in war plants may become an ever-increasing cause of absenteeism. Health officers, industrial physicians, and cafeteria managers working in cooperation may accomplish a great deal toward prevention of food poisoning. Although staphylococci and streptococci are omnipresent, food handlers carrying such organisms in the nose and throat are almost invariably responsible for food-borne outbreaks. It is suggested that staphylococcal food-borne outbreaks are associated with a high enterotoxin-producing staphylococcus carrier rate among the incriminated food handlers.

Food Poisoning. A daily inspection of the hands, arms, and forearms of the food handlers is necessary, and at the same time they should be asked if they have any boils, pimples, or infections of any kind on any other part of the body. Ample refrigeration space should be provided, since bacterial growth proceeds very rapidly at room temperatures—5 or 6 hours being sufficient for gross infection to take place. Some one person should be responsible for carrying out these precautions.

AMERICAN JOURNAL OF SURGERY

Vol. 65, September 1944

*The importance of latent hepatic disease. A. O. Wilensky.—p. 321.

Latent Hepatic Disease. Operation upon the gallbladder and biliary tract is sometimes disturbed by encountering evidences of previous liver disease, usually a form of chronic productive interstitial fibrosis. Suspected liver changes may contraindicate an operation of an elective nature, and in compulsory operations would demand strong precautionary measures to prevent postoperative hemorrhage, careful selection of anesthetic, and a different plan of operative procedure in order to obviate or lessen untoward postoperative manifestations. Precautionary measures include an adequate supply of carbohydrate, an abundant supply of protein in the diet or by transfusions of whole blood or plasma, and the use of aminoids to counteract the usual state of inanition (hypoproteinemia), and the use of abundant supplies of vitamin B.

ANNALS OF INTERNAL MEDICINE

Volume 21, October 1944

*Acute hemolytic anemia with toxic hepatitis caused by sulfadiazine. D. Donald and R. E. Wunsch.—p. 709.

Anemia and Hepatitis. Sulfadiazine has generally been considered innocuous as far as the hematopoietic system was concerned; no cases of acute anemia and toxic hepatitis have so far been reported. A pneumonia patient was treated with sulfadiazine; within 8 days a severe hemolytic anemia with toxic hepatitis had developed. The sulfonamide was immediately discontinued; after several blood transfusions, forced fluids, thiamin chloride, liver extract and a high-carbohydrate diet, the patient began to improve. Upon discharge, a slight anemia existed but liver function was normal. This case was presented as a warning in sulfadiazine administration.

ARCHIVES OF INTERNAL MEDICINE

Vol. 74, October 1944

*Gelatin as a substitute for plasma: observation on its administration to human beings. S. D. Jacobsen and C. J. Smith.—p. 254.

*Principles underlying studies of nutrition pertaining to the influence of supplements on growth, physical fitness and health, with a comprehensive bibliography of the studies. Report by the Committee on Diagnosis and Pathology of Nutritional Deficiencies, National Research Council. H. D. Kruse, O. A. Bessey, N. Jolliffe, J. S. McLester, F. T. Tisdall, R. M. Wilder and V. P. Sydenstricker.—p. 258.

Gelatin as a Substitute for Plasma. A 5% solution of purified osseous gelatin administered to 50 patients in shock relieved symptoms, and within 48 hr. approximately 80% of the gelatin was recovered in the urine and the plasma volume effectively increased for 24 hr. Probably none of the intravenous gelatin was metabolized; there appeared to be no intravascular clotting or changes of blood amino acids. Satisfactory results indicate extensive clinical trial in treating patients in shock.

Nutrition. Ten conditions and terms are presented and de-

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fined with appropriate examples drawn. As may be seen from the title of this article, it is quite detailed and includes an excellent bibliography well worth perusing. Almost all conclusions have been based on early results since no human studies have been carried on over a period sufficient to demonstrate the magnitude of improvement.

ARCHIVES OF PEDIATRICS

Vol. 61, October 1944

*Effect of synthetic niacin amide, synthetic thiamine and synthetic riboflavin on infants and young children with deficiency diseases. T. D. Spies and G.D. Ewing.—p. 517.

Deficiency Diseases in Children. In 1102 infants and children with uncomplicated dietary deficiency diseases studied in an endemic area during the past 7 years, the mothers in many instances had deficiency diseases which were more pronounced clinically during pregnancy and lactation. It seems probable that some of the infants began to develop deficiency diseases *in utero*, for a period of general poor health, failure to gain weight, and a variety of ill-defined symptoms preceded the appearance of lesions diagnostic of pellagra, beriberi, or riboflavin deficiency. This study on 200 selected infants and children with pellagra, beriberi, and riboflavin deficiency showed that these lesions disappeared promptly following the administration of synthetic vitamins specific for the particular deficiency. In nursing infants, the vitamins were administered directly to the infant in some cases; and in others, to the lactating mothers. Irrespective of the method of administration, the lesions in infants and children disappeared promptly, their appetites increased, and they gained weight which was maintained for varying periods of time, but often leveled off gradually unless the diet of the child improved. Synthetic thiamin, riboflavin, and niacin amide are valuable supplements to a diet deficient in these substances but do not compensate for a deficiency in all nutrients essential to a generally adequate diet.

BRITISH MEDICAL JOURNAL

No. 4368, September 23, 1944

*Haemoglobin levels in the Women's Auxiliary Air Forces. S. Yudkin.—p. 403.
Vitamin C and calcification. Editorial.—p. 411.
A new approach to gout. Editorial.—p. 411.

No. 4369, September 30, 1944

*Hypoglycaemia. Editorial.—p. 438.
*The midday school meal—a study of its relation to the total weekly dietary of a group of schoolboys. R. P. Cook, W. A. Davidson, D. M. Keay and D. G. McIntosh.—p. 443.

No. 4370, October 7, 1944

Superficial gangrene in adolescent diabetes. H. Whittaker.—p. 469.
*Vitamin B_1 and the heart. Editorial.—p. 476.

No. 4371, October 14, 1944

Inheritance and tuberculosis. Editorial—p. 504.

No. 4373, October 28, 1944

Relief and reconstruction in Europe. Editorial.—p. 566.

Hemoglobin Levels of the W.A.A.F. The hemoglobin level of W.A.A.F. personnel entering the service is about 95% on the standard Haldane scale. After 6 months' service it is about 103% and this level is maintained, probably due mainly to the high-iron intake of such personnel.

Hypoglycemia. Treatment of hypoglycemia for many years consisted of a high-carbohydrate intake. However, recent work on the metabolic effects of isocaloric meals supported the opinion that better results could be obtained by a high-protein diet. A high-carbohydrate breakfast resulted in an immediate rise in the blood sugar, followed an hour or so later by a fall, which, 2 to 3 hr. after breakfast, reached a level well below the fasting value. On the other hand, a high-protein breakfast gradually raises the blood sugar which reaches its maximum after only 2 hr. and thereafter remains almost level for another three. The value of a "good mixed diet" is beautifully shown.

School Lunch. A typical one consists of soup, meat or fish with potatoes and greens, and a sweet, usually a milk pudding. Second helpings are allowed. One third pint milk is given to each boy daily with his midday meal. Results, including a survey of meals served at home, show considerable individual variations as a striking feature of the total dietary intakes, due probably to the factor of appetite. The daily intakes of ascorbic acid and of calcium fall considerably short according to N.R.C. and League of Nations standards, while the intake of vitamin A is well below the suggested American level. The high consumption of "national" bread is responsible largely for the optimum intake of vitamin B, and to a less extent for the satisfactory level of protein recorded. The school meal furnishes a valuable contribution to the total dietary of first-class protein, vitamin A, ascorbic acid, and calcium. No values for a comparable group of pupils fed exclusively at home are available, but it is most unlikely they would equal and certainly would not exceed the figures given for the school meal.

Vitamin B_1 and the Heart. Drummond has affirmed the value of vitamin B_1 in high dosage as a "cardiac tonic" in heart failure and auricular fibrillation. Probably the majority of cardiologists would not agree with this, and except for beriberi and the alcoholic heart it is doubtful whether vitamin B_1 has an established place in cardiac therapeutics.

CANADIAN JOURNAL OF PUBLIC HEALTH

Vol. 35, October 1944

*Statistical estimation of vitamin C intake of troops on Canadian Army garrison rations. J. W. Hopkins, J. B. Marshall and J. C. Creasy.—p. 384.

Vitamin C Intake in Army. Analytical and statistical data obtained from surveys conducted during the winter of 1941–42 have been used to estimate the individual daily intake of vitamin C from vegetable sources included in the regular issue of Army garrison rations. Current methods of cooking left only a small fraction of the original vitamin C concentration in the food as served. Of the troops served, 15 to 30% refused any vegetables other than potatoes and about 1% took no vegetable. In some instances, as high as 50% of the men failed to eat the entire serving they received; the uneaten residues averaged from 15% by weight of the average original serving for tomatoes to 56% for turnips. From the foregoing facts it was estimated that about 88% of the men in one unit and 70% in another had a daily vitamin C intake of less than 30 mg. from vegetable sources. Increased retention of vitamin C in cooking will not overcome deficiencies arising from consumption habits.

CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 51, October 1944

*Prevention of premature arteriosclerosis in diabetes mellitus. I. M. Rabinowitch.—p. 300.

Diabetes Mellitus. It is suggested that premature development of arteriosclerosis is not inevitable. The high-carbohydrate, low-calorie diet seems to be the only diet so far developed, capable of postponing the condition. In an earlier study belief was expressed that lowered plasma cholesterol due to the low-fat content was responsible. Now, however, in addition to this, the improvement of protein metabolism resulting from increased protein and the protein-sparing action of between-meal feedings of 20 gm. carbohydrates are also held responsible. It is believed that increased resistance to degenerative changes results, reducing the incidence of arteriosclerosis.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 126, October 21, 1944

*Hypoglycemia and restoration with glucose. F. C. Mann.—p. 467.

Vol. 126, November 4, 1944

*Restaurant sanitation and chipped china. Queries and Minor Notes.—p. 670.

Vol. 126, November 18, 1944

*Perlèche—its nosologic status. C. W. Finnerud.—p. 737.
*Rationale for use of vitamins in the therapy of shock and anoxia. W. M. Govier.—p. 749.
*Adult needs of vitamins A and C. E. L. Sevringhaus.—p. 751.
*Detection and treatment of severe atypical deficiency disease. T. D. Spies, R. C. Cogswell and C. Vilter.—p. 752.

Vol. 126, November 25, 1944

*A subacute generalized neuromuscular exhaustion syndrome. J. M. Nielsen.—p. 801.
*Caffeine and "peptic" ulcer. J. A. Roth, A. C. Ivy and A. J. Atkinson.—p. 814.
*The effect of vitamin supplements on normal persons. J. M. Ruffin and D. Cayer.—p. 823.

Hypoglycemia. The concentration of glucose in the blood is a physiologic constant. If the blood sugar decreases below a certain critical level, definite and characteristic symptoms appear, followed by death. The physiologic responsibility for maintaining a life-supporting amount of glucose in the blood belongs to the liver, but many extrahepatic factors and mechanisms cause variations of the blood sugar. The major symptoms and death in hypoglycemia are due to the effect of the lack of an adequate amount of glucose for the central nervous system, which requires the presence of glucose in order to function. Glucose is essential for life in the higher organisms and appears to be as irreplaceable as oxygen.

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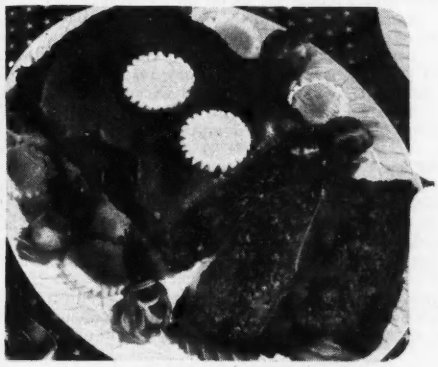

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¼ cup sugar
½ teaspoon vanilla
1 cup sliced apples
2 tablespoons sugar
⅛ teaspoon nutmeg
1 tablespoon butter

Combine cooked Cream of Wheat, scalded milk, beaten eggs and ¼ cup sugar. Add vanilla. Place sliced apples in a well greased baking dish (1½ quart). Pour Cream of Wheat mixture over apples. Combine nutmeg and 2 tablespoons sugar and sprinkle over the top. Dot with butter. Bake in moderately slow oven (350° F.) for 40 to 50 minutes. Serve hot or cold, with cream if desired.

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Chipped China. From the esthetic point of view, the use of chipped or cracked tableware is to be discouraged. In the "pre-sanitary" days, when but limited attention was given to cleansing and disinfection, the crevices of chipped dishes were packed with particles of food and living bacteria. While it is possible to sterilize chipped or cracked dishes, few eating places carry out adequate disinfection so as to eliminate the menace of the chipped utensil. Even though replacements are now difficult, most health authorities, for obvious reasons, prohibit the use of chipped tableware.

Perlèche. It is suggested that perlèche epidemically or endemically occurring might well be the result of malnutrition, any micro-organisms that are found merely being secondary invaders thriving on a soil suitably prepared for them. The predisposing factors are undoubtedly systemic in nature, not alone avitaminotic but probably also the result of other nutritional and metabolic disturbances, such as might occur from lack of a sufficient supply of amino acids or minerals or from their improper assimilation. Otherwise it would be seen in all children who habitually drool at the corners of the mouth and all adults who have overhanging lips at the lateral margins. It elects its subjects, whether it occurs endemically, epidemically, or sporadically.

Shock and Anoxia. The prevention and treatment of coenzyme breakdown is of the utmost importance if normal metabolism or, in fact, any metabolism is to be maintained in anoxic conditions. In view of the recent work demonstrating well-defined pathologic findings in thiamin deficiency it is apparent that a cell which is deprived of its coenzymes does not merely stop metabolizing foodstuffs but actually dies. To a cell, life and metabolism are synonymous. Under the conditions of the experiments discussed, the administration of vitamins in large doses has been found of great value in the preservation of tissue coenzymes in anoxic conditions. In the therapy of shock, however, one should employ all of the remedies available.

Vitamins A and C. Clinical experience in recent months indicates that a very considerable number of adult Americans, whether urban or rural, are not securing a sufficient amount of vitamin C for the best health. The increased cost of citrus fruit is less frequently a cause of this deficiency than the failure to realize the urgent necessity for the use of those foods which contain ample amounts of the vitamin. The problem is essentially educational. Observations on persons in highly variable circumstances indicate that a daily intake of ascorbic acid which will prevent gum disease must be around 75 mg. Amounts as small as 25 or 50 mg. are distinctly ineffective. For those whose diets for any reason must be limited, it is probably wise to prescribe from 50 to 75 mg. ascorbic acid in tablet form daily. With the recent improvement in manufacturing details, it is now no more expensive to get the pure crystalline vitamin in tablet form than to secure it from foods, although one must never forget that the foods themselves provide other important nutrients in addition to vitamin C. Deficiencies of vitamin A are less easily identified in the individual case. For the adult, not much less than 5000 I.U. daily is required. It is not possible at this time to state what would be the first consequences of a continuous but slight lack of this vitamin—whether expressed as an increased susceptibility to respiratory infections, disorders of the skin, or slight disturbances of vision are all debatable. There is little reason why anybody on a normal and varied diet should have a deficiency of vitamin A. If an individual diet must be highly restricted in succulent vegetables and dairy products, then it is wise for a physician to prescribe amounts up to but not exceeding 5000 I.U. vitamin A daily.

Deficiency Disease. Many physicians believe that it is possible merely to look at a patient and by some magic process know that he has nutritive failure—yet deficiency disease is more difficult to diagnose than diabetes, tuberculosis, anemia, leukemia, or any other general medical disease. Perhaps in no other disease complex is there so much variation in the individual's pattern of symptoms as in nutritive failure. The average patient with nutritive failure, when first seen by the physician, has a mixture of diseases arising from a deficiency of many nutrients, and most, and sometimes all his symptoms are ill-defined rather than clearcut. Severe atypical deficiency disease, like other forms of nutritive failure, can be successfully corrected by the application of the four essentials for therapy listed in an article by two of these authors previously published in the *Southern Medical Journal* (*see* abstract below).

Neuromuscular Exhaustion. A new syndrome is described, said to be clearly due to neuromuscular exhaustion. After a prolonged period of overwork, usually over a period of months, a final spurt of severe expenditure of energy results in exhaustion approaching paralysis. During the period of overwork the mental state is one of euphoria with apparent insensitivity to fatigue until a sudden realization of exhaustion supervenes. Extreme weakness appears while a psychomotor restlessness continues, making much-needed relaxation difficult. Insomnia followed by sleep of exhaustion supervenes, from which the patient awakens with partial relief from the pain and restlessness but with paralysis followed in a few weeks by atrophy, while fasciculation is prominent and a loss of weight of 25 lb. or more occurs. Under rest and good food a gradual recovery is made but the patient's former level of efficiency is not reached and focal atrophy of the muscles most severely affected remains. A line is crossed, as it were, beyond which muscular or neuromuscular recovery is impossible until prolonged rest and nutritional aid are given. When the line is once crossed atrophy ensues in spite of treatment, and months of relative rest are required for re-establishment of muscle physiologic function approaching the normal. The patient remains "sensitive" to overwork, very much as a victim of heat stroke remains sensitive to heat.

Caffeine and "Peptic" Ulcer. Evidence is presented which strongly indicates that the excessive use of caffeine-containing beverages may contribute to the pathogenesis of peptic ulcer, in the ulcer-susceptible individual, and may aggravate an ulcer already existing or render the therapeutic management more difficult. Preliminary studies on ulcer patients suggest the use of a caffeine test meal in the diagnosis of peptic ulcer based on the prolonged secretory curve when the response to caffeine is expressed as the total output of free acid. Additional evidence suggests that a prolonged gastric secretory response to caffeine may provide a method for the detection of those persons who are predisposed to the development of peptic ulcer. Caffeine in relatively large doses causes acute and subacute ulceration of the gastric mucosa in cats. Caffeine (80 to 250 mg.) stimulates gastric secretion and acts synergistically with histamine or alcohol in stimulation of gastric secretion in man. Caffeine-containing beverages stimulate gastric secretion in man and coffee substitutes, produced by roasting cereal, contain secretagogues which stimulate gastric secretion. Caffeine and caffeine-containing beverages provoke a prolonged increase in the total output of acid by the stomach in patients with peptic ulcer.

Vitamin Supplements. "The administration of vitamin supplements to a group of apparently normal persons, consuming the usual American diet, had no demonstrable beneficial effect."

JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 155, October 1944

*Component fatty acids from the fat of cow colostrum. A. R. Baldwin and H. E. Longenecker.—p. 407.

*A comparison of the relationship of lactic acid and pyruvic acid in the normal and diabetic dog. A. Chesler and H. E. Himwich.—p. 413.

*The determination of free choline in animal tissues. R. W. Luecke and P. B. Pearson.—p. 507.

*The function of pyridoxine and pyridoxine derivatives in the decarboxylation of tyrosine. I. C. Gunsalus and W. D. Bellamy.—p. 557.

*The preparation of fractions from pancreas that prevent fatty livers in depancreatized dogs maintained with insulin. C. Entenman, I. L. Chaikoff and M. L. Montgomery.—p. 573.

*Photochemical destruction of riboflavin in milk and losses during processing. J. A. Ziegler and N. B. Keevil.—p. 605.

*Factors influencing the riboflavin content of the cornea. O. A. Bessey and O. H. Lowry.—p. 635.

Fatty Acids From Colostrum. A sample of colostrum fat from a cow fed a known diet was analyzed for fatty acid composition. The component acids were found to be not significantly different from those of the fat of mature milk.

Lactic and Pyruvic Acids in Diabetes. Injection of insulin into depancreatized dogs leads to the accumulation of lactic acid and pyruvic acid. In depancreatized dogs examined 48 to 96 hr. postoperatively without receiving insulin injections, and in depancreatized animals used only after recovering from the operation by maintenance with insulin and pancreatin until 18 to 42 hr. before the experiment, the responses to the injection of insulin were somewhat different. In the former, the fall in blood sugar was slower and the concentrations of lactic acid and pyruvic acid continued to rise for 2 hr. after the injection of insulin, while in the latter, the fall in glucose was more rapid and the concentration of lactic acid and pyruvic acid reached a maximum at 30 to 60 min. following insulin, and then decreased. Despite the large rises in lactic acid and pyruvic acid caused by the injection of insulin, the ratio between the two acids exhibited only small fluctuations.

Determination of Free Choline. A microbiological method for the estimation of free choline in animal tissues is described. Values for free choline in fresh beef liver range from 0.08 to 0.20 mg. per gram. This represents about 2% of the total choline in the liver. For the determination of total choline the values by the microbiological method agreed very well with the values obtained by chemical methods. Incorporation of 1% choline in the diet of the rat is accompanied by a rather large increase in the free choline content of the kidney. Liver and brain tissue showed no corresponding increase.

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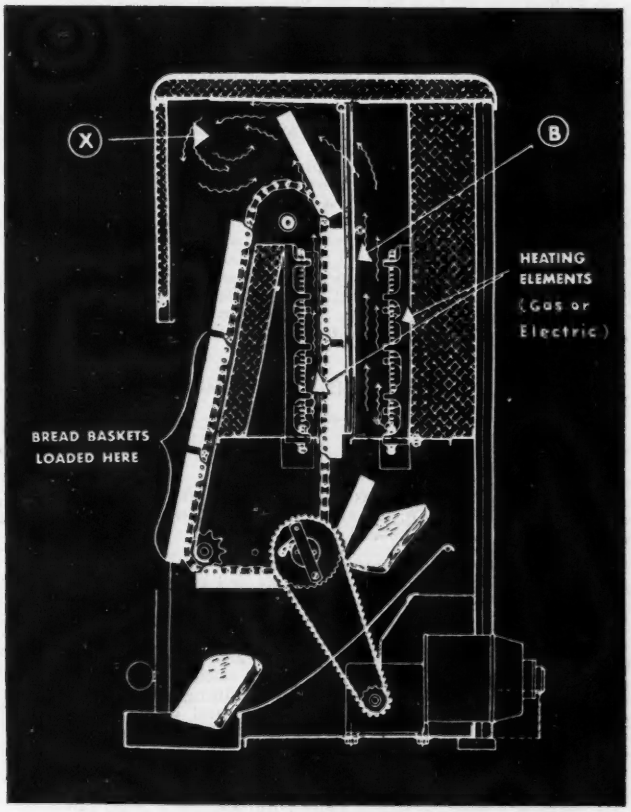

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This process—exclusive with Savory—assures each slice a perfect *inside* as well as crisp, appetizing, evenly browned surfaces. Toast made the Savory way combines delicious flavor with good nutrition—and what's more, ease of operation with real economy, (6 to 36 slices per minute for pennies per hour).

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Decarboxylation of Tyrosine. A derivative of pyridoxine present in acid-autoclaved yeast extract and in pyridoxine solutions treated with cystine, or with dilute hydrogen peroxide, has been shown to function in the decarboxylation of tyrosine. The stimulation of the tyrosine decarboxylase system by these three preparations is in proportion to their pseudopyridoxine content as reported by others. Unaltered pyridoxine is inactive or much less active in this function. Pyridoxine, upon standing in the refrigerator or upon aeration, gradually increases in ability to stimulate the decarboxylase system.

Prevention of Fatty Liver. The preparation of pancreatic fractions that prevent fatty liver in completely depancreatized dogs is described. Active fractions were obtained from dilute acid extracts of pancreas by precipitation with ammonium sulfate between concentrations of 0.25 and 0.5 saturation. The daily feeding of as small an amount as 60 mg. of a fraction maintained a normal fat content in the livers of completely depancreatized dogs for as long as 6 mo.

Destruction of Riboflavin in Milk. Riboflavin was destroyed to the extent of 9 to 16% during pasteurization, from 5 to 8% during vitamin D enrichment by irradiation, and from 3 to 5% during bottling and brief storage preceding delivery. It has previously been shown that up to 66% of the riboflavin is destroyed if milk is exposed for 2 hr. to direct sunlight.

Riboflavin Content of Cornea. A procedure for the determination of phosphorus in 0.05 mg. of cornea is described. The riboflavin and phosphorus of the cornea are found to be largely concentrated in the epithelium. The concentration of riboflavin in the cornea is promptly influenced by the level of riboflavin intake: 40 γ per day produces a maximum effect, at least up to 3 weeks. With lesser amounts of riboflavin the concentration of corneal riboflavin falls, whether calculated on the basis of dry weight or on the basis of phosphorus present. There is no demonstrable influence of light, either visible or ultraviolet, on the concentration of corneal riboflavin.

JOURNAL OF HOME ECONOMICS

Vol. 36, November 1944

Should the AHEA abandon legislative work. H. Kyrk, D. Dickins, F. LaG. Harris and L. Storms.—p. 562.
Benefits from research in nutrition. E. N. Todhunter.—p. 571.
Institution management research: 1942-44. K. W. Harris.—p. 581.
Ascorbic acid and insomnia. H. B. Burton and L. A. Miller.—p. 587.
*Freshman food likes. R. M. Leverton.—p. 589.

Freshman Food Likes. Questionnaires when checked by 110 female and 56 male college freshmen indicated these most pertinent findings: There was no one food that all of both sexes were willing to eat often. All men were willing to drink whole milk often, but only 84% of the women expressed such willingness. The five foods that the greatest number of men were willing to eat often were: milk, white potatoes, whole wheat bread, green peas, and apples; whereas the women were willing to eat often apples, oranges, raw tomatoes, leaf lettuce, and whole wheat bread. This feminine tendency to prefer the fruits and vegetables or foods high in cellulose, whereas the men preferred the ones higher in energy, persisted throughout the answers. As an example, 20% of the women but only 5% of the men were unwilling to eat oatmeal. Both preferred white potatoes, green peas, raw tomatoes, and leaf lettuce, of all vegetables. Foods most often checked by the men as "unwilling to eat" were buttermilk, parsnips, turnips, kidney, tongue; by the women, buttermilk, squash, turnips, kidney, margarine. Unwillingness to eat margarine was expressed by 27% of the men and 37% of the women. Twenty-two per cent of both sexes expressed unwillingness to eat spinach and liver, and only 45% were willing to eat them often.

MILBANK MEMORIAL FUND QUARTERLY

Vol. 22, October 1944

Findings of selective service examinations. G. St. J. Perrott.—p. 358.
*Recent findings on nutritional status of industrial workers. D. G. Wiehl.—p. 367.

Nutrition of Industrial Workers. Obviously there is no easy or single method to improve the nutrition of industrial workers. Education of the worker and of the wives is important, but management can play an important role in improving the eating habits of its employees. As it is to the advantage of industry to have well-nourished workers, management should take an active part in working out methods to assure adequate feeding facilities, should supervise the quality of food dispensed and cooperate in educational programs and other means for influencing the dietary habits of the workers.

A diagnostic service for nutritional deficiencies in industrial medical departments offers a direct, individual approach which holds great potentialities for raising the nutritional status of workers. Men workers have moderate or well-advanced chronic deficiency conditions which should be corrected. If these conditions are described and interpreted to the employee, and treatment for their correction is undertaken, not only are the more definite nutritional problems cared for but also an interest may be stimulated in diet and maintenance of good nutrition. In addition, knowledge of the prevalence of specific nutritional deficiencies in the group would furnish guidance on the importance of emphasizing special nutrients in in-plant feeding and in the educational program. Furthermore, specific occupational groups could be studied over a period of time for changes in nutritional status. Workers in certain occupations may tend to develop specific deficiencies, and the occupational factors involved and the prevention of such deficiencies should receive special attention.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 231, September 28, 1944

*Abnormal carbohydrate metabolism in human thermal burns. F. H. L. Taylor, S. M. Levenson and M. A. Adams.—p. 437.

Vol. 231, October 5, 1944

*Medical progress: physiology. H. E. Hoff.—p. 491.

Thermal Burns. In a study of 35 burned patients, a high incidence of hyperglycemia, lactacidemia, and moderate reduction in carbon dioxide combining power of the plasma were found. There was a high degree of correlation between these abnormalities of carbohydrate metabolism and the severity of the burn. Glucose tolerance tests indicated that in some severely burned patients with hyperglycemia there remains a considerable ability to metabolize added glucose. There was no evidence of liver damage in these patients as a result of the burn injury. Some of the possible bases for the abnormalities of carbohydrate metabolism following burns are discussed. Abnormalities in carbohydrate metabolism presented are not inconsistent with the presence of an increased glycogenolysis, together with a possible gluconeogenesis from protein. It is suggested that additional glucose be given early to burned patients.

Medical Progress: Physiology. In a variety of medical and surgical conditions there may occur a considerable depletion of body protein owing to a combination of factors, of which the two most important are a generally diminished protein intake and an enhanced protein catabolism. This situation inhibits wound healing, renders the liver more liable to toxic damage, impedes the regeneration of hemoglobin, prevents the resumption of normal gastro-intestinal activity, and delays the full return of muscular strength. It is obvious that to meet the situation an adequate supply of proteins and calories must be made available to the body. When an adequate intake cannot be maintained by mouth, recourse must be had to parenteral administration. Plasma may be employed but the quantities that must be injected are too large to permit its use as a source of protein food. Attention has been directed recently to the use of mixtures of amino acids produced by the pancreatic hydrolysis of casein as a ready source of the protein building blocks. Oral administration of high-protein diets, reinforced by fat and carbohydrate, is recommended and if necessary they can be administered by intubation. The simplest method should be employed to assure that an optimum protein intake is maintained along with a high-calorie diet. This implies at least 150 gm. protein and 3500 calories, with as much as 500 gm. protein daily when trauma has been severe, as in serious burns.

PUBLIC HEALTH

Vol. 57, July 1944

*The nutritional status of factory workers. J. Yudkin.—p. 109.

Nutritional Status of Factory Workers. The fact that in the group of factory workers studied there were no fall in hemoglobin, no deterioration in dark adaptation, and an increase of weight between 1941 and 1942, and that the increase of weight continued between 1943 and 1944, suggests that the diets had not deteriorated during this time. It does not mean that the diets were entirely satisfactory; an indication of their deficiency is shown by the fact that the dark adaptation was lower than that of Cambridge students and nurses. It is worth noting that a group of subjects may be better nutritionally than a second group in one respect and worse in another. For example, although the factory workers had a poorer dark adaptation than Cambridge women students, their hemoglobin values were better.

REVISTA DE LA ASOCIACIÓN ARGENTINA DE DIETOLOGIA

Vol. 2, No. 5, January-February-March 1944

*The use of acid and acidified milk in the feeding of patients. B. Rothman, H. Díaz and E. Falabella.—p. 22.

So Many Forms . . .
So Many Tastes . . .

Many a dietitian has spoken her appreciation of the help which cereals offer in diet organization. Available in such a wide variety of forms, and in so many different tastes, cereals help to give breakfast a different appeal each day, visually and gastronomically, over comparatively long periods. Few food items prove so helpful in this regard.

Another advantage is the universal acceptance accorded cereals. Rare is the person who does not like cereals, at least in one form or another, derived from one grain or another.

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The contribution made by this dish—1 oz. of cereal (whole-grain, enriched, or restored to whole-grain values of thiamine, niacin, and iron), 4 oz. of whole milk, and 1 teaspoonful of sugar—is shown in the appended table.

Calories	**201**
Protein	**7 Gm.**
Carbohydrate	**32 Gm.**
Fat	**5 Gm.**
Thiamine	**0.19 mg.**
Riboflavin	**0.27 mg.**
Niacin	**1.82 mg.**
Calcium	**158 mg.**
Iron	**1.73 mg.**

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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Study of the intestinal microflora of infants fed human milk. M. S. Cataldi and C. P. Montagna.—p. 36.
Intestinal microflora of infants fed the Escudero milk mixture. P. Escudero, M. S. Cataldi and C. P. Montagna.—p. 41.
*Insects and foreign matter in dried fruits. A. M. de Soriano.—p. 51.
*A study of the nutritive value of cress. A. Escudero, M. L. Herraiz and R. Senra.—p. 54.
*The vitamin content of cress. A. Escudero, M. L. Herraiz and H. de A. Herrero.—p. 57.
*Health conditions in Portugal. Summary of a report from the Argentine legation in Lisbon.—p. 78

Acid and Acidified Milk. The problems involved in serving acid and acidified milk to patients are discussed; 250 different preparations using acid and acidified milk were observed as to flavor, color, appearance, stability, and viscosity and the formulas and results given in five tables.

Dried Fruits. When 125 samples of nuts and dried fruits for sale in Buenos Aires were studied, the methods used and grades assigned paralleled those of the U. S. Department of Agriculture. The fruits studied, dried peaches, plums, pears, prunes, figs, and apples, varied in acceptability from 13% for pears to 100% for peaches of a certain type. With the exception of plums all others were below 38%. Only 36% of the nuts were acceptable. Recommendations are made for improving this situation.

Cress—Chemical Composition. This member of the mustard family, a kind of cress, grows wild in Argentina, and is popularly used as a therapeutic in chlorosis and intermittent fever. In certain sections it is believed that any trouble with the teeth can be cured by chewing its leaves. Its seeds are used as a substitute for pepper, and the foliage is eaten as a salad. A study was made of the wild cress and the very similar cultivated peppergrass. An analysis showed both to be high in nitrogen and protein, and exceptionally low in carbohydrates (1%). There was a quantity of ash rich in iron and calcium in the samples studied.

Cress—Vitamins. An analysis of wild cress and cultivated peppergrass like that grown in North America showed the plants to be good sources of carotene, thiamin, riboflavin, and ascorbic acid.

Health Conditions in Portugal. An increase in urban population has resulted in higher rents and poor living conditions. The price of necessities has risen, but there has been no wage increase. Importations from Portuguese colonies have been greatly curtailed on account of the war, while exportations have increased. As a neutral, Portugal has been forced to export foods to the belligerents. There has also been considerable illegal exportation. Cheaper foods of low nutritional value have been substituted for scarce items. Canned and dried foods low in vitamin content are offered in place of expensive fresh products. Foods have been adulterated with material which may be nutritionally valueless or actually harmful. Food poisoning is frequent in Lisbon.

A cooperative system failed because of poor management and lack of public cooperation. For example, farmers were urged to plant a quantity of potatoes; there was an abundant crop, but the buying group acted so slowly that the potatoes spoiled before reaching the market. This year farmers have refused to plant a large acreage.

There has been much hoarding, with the result that the poorer classes are unable to get proper food. This in turn has had an effect on the disease statistics. Obesity, except for glandular cases, gout, hypertension, and diabetes have decreased. But there has been an increase in anemias, leukemias, rickets, osteomalacia, tuberculosis, infectious diseases, and gastric and intestinal disorders. Infant mortality has increased.

SCIENCE

Vol. 100, October 6, 1944

*Constructive medicine. E. J. Stieglitz.—p. 313.

Vol. 100, October 13, 1944

*Telang liver and vitamin A toxicity. E. J. Herbst, P. L. Pavcek and C. A. Elvehjem.—p. 338.

Constructive Medicine. The term constructive medicine is suggested to replace preventive medicine. The treatment of disease is essentially an attempt in the reconstruction of health. As health is relative there is always room for improvement, even though obvious disease is absent. Constructive medicine attempts to improve the intrinsic vigor, resistance, and endurance of an individual. It must be applied individually, for it involves direct effort on the part of the patient and something more than the mere control of the environment. Constructive medicine can produce results clearly demonstrable to the individual. Improved vigor from better nutrition and raised hemoglobin levels, greater work efficiency and euphoria, aided by properly applied mental hygiene, are notable to the patient.

Telang Liver and Vitamin A Toxicity. About 20% of fresh livers condemned for telangiectasis were toxic to weanling rats receiving the calcium-supplemented livers as their sole dietary. The symptoms observed in rats were growth failure and multiple spontaneous fractures of the bones and of the extremities. The toxicity of certain telang livers was due to their abnormally high stores of vitamin A. When these livers, supplemented only with calcium carbonate, were fed to weanling rats, the daily intake of vitamin A was in excess of the toxic dosage of 15,000 I. U. per day. Identical symptoms of toxicity were observed in weanling rats fed 20,000 I. U. crystalline vitamin A per day in conjunction with a standard stock ration.

SOUTHERN MEDICAL JOURNAL

Vol. 37, October 1944

*Vitamin K therapy in menorrhagia: A consideration of the hepatic factor in menstrual disorders. R. Gubner and H. E. Ungerleider.—p. 556.
*The incidence of trichina infestation in eastern Virginia. A. C. Broders, Jr., and W. B. Porter.—p. 558.
*Nutrition in convalescence and rehabilitation: A progress report. T. D. Spies, R. W. Vilter and G. Douglas, Jr.—p. 560.

Vitamin K Therapy in Menorrhagia. Administration of vitamin K is a useful measure in controlling menorrhagia, where this disorder is not accounted for by local pelvic abnormalities. Its beneficial influence is probably related to its action in prothrombin formation. Prothrombin function is a sensitive index of hepatic integrity and there is evidence that hepatic function is regularly impaired at the onset of menstruation. The role of impaired hepatic function as a contributory factor in the genesis of various menstrual disorders is discussed; and it is suggested that measures designed to influence liver function favorably may provide a useful therapeutic approach.

Incidence of Trichina. This study would serve to warn the public of the danger of eating insufficiently cooked pork. Government inspection alone does not guarantee freedom from trichina infestation.

Nutrition in Convalescence and Rehabilitation. Precise diagnosis is the first step in shortening convalescence and hastening rehabilitation following nutritive failure. The following 4 principles of nutritive therapy are recommended for shortening convalescence and rehabilitating those ill solely from malnutrition: Diet—4000 calories, 120 to 150 gm. protein, rich in vitamins and minerals; basic therapy—thiamin, riboflavin, niacin, ascorbic acid, orally; additional medication—synthetic vitamins as indicated, orally or parenterally; and natural B complex—brewers' yeast or extract, or rice bran extract, and/or liver extract orally or parenterally.

SURVEY GRAPHIC

Vol. 33, September 1944

*Food for workers. E. Perry.—p. 382.

Food for Workers. Expansion of industrial feeding, one of the lusty wartime industrial developments, gives promise of coming of age in the postwar period and of exerting a real influence on the lives of millions of workers and their families. Its wartime progress has made industrial feeding an accepted practice, made it possible to step up production, and at the same time to maintain health and efficiency of workers in overcrowded communities. Well-balanced meals served and eaten at the plant help to improve the food habits of the family at home. Lessons learned in industrial feeding and nutrition education of workers may well be applied to the problems in the liberated countries.

AMERICAN COOKERY

Vol. 49, September 1944

There is no shortage of "good" protein. T. S. Harding.—p. 18.
*Just another assignment. E. Goodman and M. Baruch.—p. 26.

Industrial Cafeteria. When a government salvage repair plant was built, unprepared to serve 1000 employees, 75% of whom were women, the American Women's Voluntary Service started operation of a nonprofit cafeteria which now provides adequate lunches for these workers. The staff: a supervisor, captain, and 12 volunteer workers, are on duty 4 hours daily. Only very simple dishes, beverages, sandwiches, salads, and desserts are made in the canteen. Other food comes from a commissary specializing in cooked food service. Methods which speed service include installation of a beverage bar for workers who bring their lunches and buy a beverage or dessert, and the development of menus which permit quick decisions in choice of food. The supervisor plans the menus, keeps a daily inventory of food and does the ordering, the captain is in charge of the dining room and the volunteers serve the foods from the counter.

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BAKER'S HELPER

Vol. 83, September 9, 1944

The purchase of flour from the buyer's standpoint. O. Skovholt.—p. 36.
*Some comparisons in cake flour development. J. A. Lambeth.—p. 42.
*How the baker can avoid flour infestation. F. Somers.—p. 47.

Vol. 83, September 23, 1944

*Soy flour in the baking industry. R M. Bohn.—p. 40.
*Simplified streamline production through prepared mixes. W. E. Broeg.—p. 56.

Comparisons in Cake Flour. In selecting flours most suitable for cake and pastry making, the strength of the flour, capacity for absorption, comparative action of sugar and shortening, and amount of liquid that the particular flour would carry must be considered. The finest quality cake flour will have enough absorption capacity to carry the full sugar and moisture content throughout manufacture without falling or showing any depreciation effect during baking. Soft winter wheat flours are recommended for the manufacture of most cookies. For Danish and puff pastry bases, a blend of strong and soft flours is especially recommended.

Flour Infestation. A major cause of flour infestation is shortage of help and lowering of conditions of the farmers' storage of the wheat, and shipping and the storage in the grain elevators due to the help problem. To prevent infestation in your bakery, fumigate regularly with a safe, heavier-than-air fumigating gas. Use it every 2 weeks inside flour machinery. All cracks, crevices, racks, floors, and walls should be blown out and sprayed with a good food insecticide before flour is stored. Spray flour room regularly once each week, using a powerful electric sprayer if possible.

Soy Flour in Baking. A properly processed soy flour will definitely retard the staling of all types of baked goods for reasons not clear. Apparently the soy flour retards movement of moisture from the starch to the gluten portion. Up to 3% of properly processed soy flour can be added to bread with little or no change in the character of the bread, if added at the dough stage. Bread with soy flour shows certain desired characteristics: retardation of staling, dough more elastic and silky, improved toasting properties, rich crust color, and economy. No other bread ingredient adds so much richness or improves the quality of bread at so low a cost. Extracted soy flour and a properly processed full-fat soy flour are desirable for bread (expeller soy flour has been damaged in manufacture). These flours are also desirable in cakes. From 1 to 2% of soy flour may be added to each 100 lb. batter. Each pound of soy flour takes from 2½ to 3 lb. extra water. Flour can be added in the first stage of any cake mix, extra water later. Adding 1½ lb. soy flour and 4½ lb. extra water to 100 lb. batter will make 6 lb. extra cake at a cost of about 1½ cents per pound and will improve the cake; 1 lb. soy flour and 3 lb. water replace 4 lb. eggs—not more than 25% of the eggs should be replaced in this way. Soy flour improves the grain and texture of the cake, gives a more moist and tender crumb, especially desirable in devil's food cakes, retards staling, and reduces cost. Ten per cent of soy flour, based on the wheat flour, can be added to any sweet roll dough formula, about 1 lb. water being required for each pound of soy flour added. From 3 to 5% soy flour added to cookie formulas, based on flour, gives much the same enriching effect as an increase in eggs, milk, or shortening. The full-fat soy flour should be used in pie crusts: 5 lb. per 100 lb. flour, added with the flour with as little extra water as possible.

FOOD INDUSTRIES

Vol. 16, June 1944

Research on production basis. A. I. Nelson, J. T. Nickerson and C. F. Evers.—p. 63.
*What's ahead for frozen foods. C. R. Havighorst.—p. 66.
*A better way to determine the jelling power of pectins. R. E. Cox and R. H. Higby.—p. 72.
*Food fish dehydrate well. W. S. Hamm, C. Butler and M. Heerdt, Jr.—p. 76.
*The British develop Empire foods. E. Hardy.—p. 85.
*How to chart production costs. Part I. R. R. Haugh.—p. 86.
New facts about packaging and storing dehydrated foods. Part V.—p. 89.

Vol. 16, September 1944

Fruit juices yield food yeast. J. J. Stubbs, W. M. Noble and J. C. Lewis.—p. 68.
*Research reveals new facts for food technologists.—p. 71.
*How to rout rodents. B. P. Kolkana.—p. 72.
*No browning of cut fruit when treated by new process. D. K. Tressler and C. DuBois.—p. 75.
*New facts about packaging and storing dehydrated foods. Part 8.—p. 76.
*Safety saves manpower. E. V. Gill.—p. 80.
*Freezing provides an answer to sweet potato problem. Part 3. J. G. Woodroof and I. S. Atkinson.—p. 88.
Refining edible fats and oils—procedures and problems. J. Davidsohn and A. Davidsohn.—p. 91.
*Grade labeling ruled out when OPA has mind changed.—p. 101.
*Frozen citrus juice is proved practical.—p. 104.
Soluble coffee.—p. 132.

Future of Frozen Foods. The frozen food industry has expanded its production output more in the past 2 years than most new industries in 10 years, partly due to scarcity of other processed foods, low-point value, high-priced and often poor quality fresh produce; because overseas shipments are impracticable, frozen foods stay at home. The number of plants increased from 30 in 1930 to well over 400 at present. Markets for frozen foods can be classified as industrial, such as ice cream, jam, and jelly manufacturers; institutional, including hotels, hospitals, restaurants and retail. Frozen food prices must follow wage curves which will result in lower future prices. Scientifically trained men are needed to refine production methods, reduce processing costs, and develop new products through research. Until recently, finished frozen food products were unchanged from the original form; refinements and combinations now on the market are creating consumer demand. Only a few frozen food packers are prepared for national distribution.

Jelling Power of Pectins. Since the hand grading method of determining the jelling ability of pectin allows wide latitude for individual judgment and can never be entirely accurate, an instrument and method of use have been developed which allow the grade to be determined with accuracy and precision. This is accomplished by using a jelly glass of definite measurements which gives the percentage decrease in height directly. When inverted, the percentage decrease in height is read as percentage of sag by a single setting of a micrometer screw. The points of superiority of the present test method over other methods investigated are: the jelly surface is not ruptured, the jelly is not strained beyond its elastic limit, jellies of commercial firmness can be tested, and the instrument measures jelly firmness accurately and reproducibly.

Dehydrated Fish. Fish to be dehydrated must be in prime condition, and can be dressed in a variety of ways, usually as fillets. Fish require precooking for speedy dehydration and good reconstitution. Many species are suitable for dehydration. The keeping quality is adversely affected by high moisture content, and deterioration is much more rapid in storage at 100 than at 70°F. Only tin containers have been successful for any extended storage.

Canning in British Dominions. Under the stress of wartime demands, food processing is becoming one of the largest industries in the Union of South Africa; 50 companies now turn out canned products, the output of which continues to mount. Cardboard containers have been introduced to replace glass and tinplate in packing jam, lard, honey, cod liver oil, malt, and peanut butter. Australian canners are meeting requirements of the allied forces in practically all food varieties processed. In the Scottish Highlands a new cannery now preserves local "wild foods."

Charting Production Costs. Included among the variables which must be considered in determining the production cost of finished products are: percentage of moisture in the raw and in the finished product, seasonal and regional variations in the cost of the raw product, and plant losses in such operations as breaking, sorting, peeling, and trimming. But with the aid of alignment charts, it is possible to make a quick, efficient, and accurate analysis of the effect of variations in such cost factors upon the unit cost of the finished product and upon the net profit or loss. A single master alignment chart may be drawn to include all phases of food processing from quality and price of the raw product, through the steps of plant procedure, to the unit cost of the finished product and the net profit of the process, and shows the effect of variation of any combination of factors upon any other factor and the relationship between 9 variables with no constants assumed. The variables in the study of eggs are average weight of shell eggs, and weight of case; breaking room loss in per cent; average weight of liquid per case; average cost per case; yield—pounds of powder per case; cost per pound of powder produced; pounds liquid egg per pound of powder evaporation factor; per cent solid in liquid eggs, per cent moisture in dried eggs.

Research for Food Technologists. In dehydrating meats, the vacuum rotary process most easily produces an acceptable product. Canning is the most satisfactory packaging method. There is no appreciable loss of vitamins in spray-drying eggs, although storage at temperatures of 98.6°F. for a month causes 60% loss of vitamin A. Storage at lower temperatures reduces the loss. Compressing the powder into blocks or adding antioxidants increases retention. Pads of activated charcoal placed at the ends of wax paper containers help maintain the characteristic odor of fresh eggs. Spray-dried powders of boysenberries or grapes and sugar and water can be converted into jelly by cooking. A base for grapefruit marmalade can be made by drying separately the cooked peel and a purée made from the rest of the fruit. Starches from glutinous corn and sorghum have properties similar to tapioca and yield even better dextrines. Methods for

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Check only one { ☐ C353 Teaching Kit on Cereal Grains or ☐ C1865 "A Handbook of Cereal Grains" (included in kit)

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☐ C1868 Quantity Recipe Cards

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separating the starch into fractions which have different physical properties have been tried. One of the better fractions yields a thermoplastic suitable for molding. The formation of free fatty acids in cottonseed during 6 months storage was considerably higher when the moisture content was above 10%. Cottonseed treated with gaseous ammonia had less hydrolysis and developed an improved color. Prevention of rancidity in vegetables is accomplished by preserving natural antioxidants such as alpha-tocopherol or by adding antioxidants. Combining controlled hydrogenation and low temperature solvent fractionation produces a hardened fat from cottonseed oil which is very similar to cocoa butter. In order to reduce shipping space, sliced peel for marmalade can be packed with sulfur dioxide in barrels, and the liquid reduced to 65% soluble solids and also packed with sulfur dioxide in barrels. The components can then be combined with sugar and water and are said to produce a marmalade equal in quality to the fresh product.

Rodent Control. Three different species of rats normally infest food plants in the United States: the heavily built Norway rat, also called the wharf, sewer, brown, or house rat which keeps to lower floors of buildings; the smaller roof rat, usually found in Southern or coastal sections of the country, which has unusual climbing ability; and a third species, closely related and similar to the roof rat except that it is bluish black. Major steps to rat control are rat-proofing, rat harbor elimination, sanitation, and baiting or trapping. Proofing is the most effective, but only a combination of all four methods provides permanent rat control. Proofing consists of closing all possible entrances to the building, harbor elimination consists of destroying suitable living places, sanitation involves cleaning out all refuse which it is possible for the rats to eat, and temporary measures include baiting, trapping, and gassing.

No Browning of Cut Fruit. Certain fruits discolor when exposed to air due to the presence of catechol tannins. The effectiveness of ascorbic acid and its isomers in inhibiting the browning of peaches has been under test by the Frosted Food Sales Corporation and others. The new treatment may be applied to unprocessed cut fruit, to fruit during preparation for freezing, or to the solution used on frozen fruit. Fresh fruit will remain for several hours without darkening and frozen fruit may be kept as long as a year before thawing and still remain natural colored when it is unthawed. *L*-ascorbic acid, found superior to its isomers, does not change noticeably the flavor of the fruit and does increase the vitamin C content. Fruit sprayed with or immersed in suitable solutions, then packed without syrup, will probably be more suitable for sliced fruits for bakery use.

Dehydrated Foods. Dehydrated beets compare favorably with fresh when prepared for the table, although they are a poor source of thiamin and riboflavin. Most of the original flavor and color can be preserved for a year, providing the temperature does not rise above 80°F. for more than 2 or 3 mo. of the year. After dehydration, experimental packs of different types were made; in general, the type of pack made no difference in the color after storage. The beets were most stable at 75 to 80°F. At 98°F. they were almost inedible at the end of 12 mo., and at 130°F. they were inedible at the end of 1 mo. Beets stored at high temperatures evolved large amounts of carbon dioxide.

Safety Saves Manpower. Safety education must be positive, systematic, and persistent. Wilson and Company sponsors a safety program in which each plant has a safety man who reports to a general safety committee. The plant safety man, assisted by the safety committee, regularly inspects machinery, gives training courses, and issues bulletins and written material.

Freezing Sweet Potatoes. Frozen sweet potatoes, sliced or puréed, can be utilized the same as cooked sweet potato slices or purée, or else candied, fried, or made into pies. Thawed and pulped they may be used as frozen purée in pies, tarts, puffs, soufflé, custard, and meat loaf. If properly prepared, the purée will not darken after thawing. When .4% citric acid is added, the natural color is restored and flavor enhanced. Lemon juice also brings out flavor and causes a desirable thickening of the potatoes due to the coagulation of raw egg in the mixture. Includes formulas for sweet potato pie and ice cream.

Grade Labeling. Price controls for the 1944 pack will be based on commercial grades without use of the U. S. grades as established by USDA. Congress has been in opposition to grade labeling since 1942.

Frozen Citrus Juice. Experimenters at the University of Florida are developing the possibilities of citrus juice concentration by freezing. After 22 months storage, Valencia orange juice, concentrated to Brix 48, retained 85% of the vitamin C content and could not be distinguished from the fresh. Packaged juice may be stored at 0°F. and is easily thawed by adding an amount of tap water equivalent to that removed from the juice.

HOTEL MANAGEMENT

Vol. 46, July 1944

*Eight ways in which salads can be made more attractive and salable. A. Easton.—p. 40.
*A guide to the purchase and preparation of fish. L. P. DeGouy.—p. 46.

Vol. 46, August 1944

Ten popular specialty meat recipes. M. L. Casteen.—p. 26.
*The steps in streamlining menus. A. Easton.—p. 30.
*Ideas that increase employee efficiency and cut down labor turnover. C. Dahl.—p. 33.
*A guide to the preparation of fish. L. P. DeGouy.—p. 40.

Vol. 46, September 1944

Selling bigger breakfast. M. L. Casteen.—p. 29.
Make-shift methods that ease the housekeeping help shortage. L. Fogarty.—p. 32.
*A guide to the preparation of fish. L. P. DeGouy.—p. 42.

Salads. Appearance sells the salad and simplicity is the keynote of good arrangement. Appetizing flavor calls for a balance between the bland and highly flavored. Lettuce should be washed and placed in refrigerated drawers or tight tin cans for at least 2 hr. Celery, cucumbers, raw carrots, or green peppers are good for contrasting textures in fish, egg, and potato salads. Suitable garnishes for cheese are sliced tomatoes, strips of green pepper, diced pimentos, water cress, parsley, and radishes. Garnishes for other salads are listed. For variation, make anchovy French dressing or add avocado, basil leaves, catsup, cranberry, fruit juice, or make celery mayonnaise, orange or pineapple mayonnaise, or any of many others suggested.

Fish. There are 15 edible species of smelts, which are delicious fried, baked, stuffed, sautéed, grilled, pickled, in casserole or loaves. Snappers are cooked the same as mackerel. A recipe for Brazilian snapper fillet is given, also snapper baked with oyster stuffing. Suckers may be boiled, baked, broiled, stewed, or made into chowders.

Streamlining Menus. Due to the scarcity of certain foods, menu price control, and the labor shortage, menus in public eating places in the past year have been changed radically. At the Lindsay and Curr Company, N. Y., daily records were checked to see which items were the best sellers and the slow ones eliminated. Short orders which caused delay and service problem were omitted, the soda fountain closed, ice cream desserts served from salad department, buffet table given the high spot on menu, and the summer special changed daily which made it possible to keep the menus varied according to the weather and available leftovers. It is important to select foods of universal appeal in planning menus of limited variety. With streamlined menus, customers can make selections quickly since choice is limited.

Increasing Employee Efficiency. Work done under pressure sharpens the awareness of obstacles. Several sketches illustrate simple work-lightening principles. Reduce loads to save strength and breakage or put loads on wheels to speed up results. Replace steps with ramps so wheels can travel. Ease the tension. Break down jobs, so that light tasks may be separated from those requiring strength. Use new inventions: magic-eye doors, air-conditioning, ventilators, lighting and color improvements, communication systems, conveyers, and sub-conveyors. Adjust equipment for handicapped employees and for women. Be sure the equipment is adequate for the job. Ask those who do the work for suggestions.

Fish Guide. Sunfish, sturgeon, swordfish, trout, and tuna or tunny are discussed in detail. Sizes and weight, specifications, market units, types, typical recipes, season, names according to locality, and methods of cooking are given for each fish listed.

Preparation of Fish. This is a continuation of ready reference charts. Turbot may be boiled, braised, stewed; when used as steak, broiled or pan-fried. Weakfish may be baked, boiled, broiled, stuffed, stewed. Whale may be boiled, baked, stewed, grilled, brochette, loaf, hamburger, pie. Whitebait is usually fried after being rolled in seasoned flour or dipped in batter. Whitefish may be baked plain or stuffed, boiled, broiled, stewed, planked, gefüllte, kosher, cakes, fritters. Whiting may be baked, boiled, stuffed, fried, broiled, au gratin, shirred, meunière.

HOTEL MONTHLY

Vol. 52, July 1944

Changing over an old refrigerating system.—p. 33.
The coffee shop.—p. 35.
Virtues of thermopane windows.—p. 38.

Vol. 52, September 1944

Michigan State's campus hotel.—p. 25.
Encourage the sanitary handling of tableware.—p. 29.

Protein Digestion *in* PREGNANCY

It is estimated that twenty-five to seventy-five percent of pregnant women develop hypochlorhydria during the course of their pregnancy.

Limited peptic digestion accompanying hypochlorhydria may lead to protein depletion of the mother and impaired growth of the fetus.

When hypochlorhydria is present, prescribe AMINOIDS* for your patients. Because this protein hydrolysate product supplies pre-digested protein, the need for peptic digestion is largely obviated.

AMINOIDS contains the amino acids and peptides present in four high quality protein foods—beef, wheat, milk and yeast. One tablespoonful four times daily supplies 16 grams of protein as hydrolysate. Amounts up to and exceeding 100 grams daily may be assimilated with ease.

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A PROTEIN HYDROLYSATE PRODUCT

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For Oral Administration

Supplied as dry granules in bottles containing 6 ounces, AMINOIDS is palatably taken in any hot or cold beverage.

*The name AMINOIDS is the registered trade mark of The Arlington Chemical Company.

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*Winter pears . . . how to buy and serve them at a profit.—p. 40.
Communal feeding in Great Britain.—p. 48.
Hotel laws and regulations in Quebec, Canada.—p. 60.

Winter Pears. The four varieties of winter pears are Bosc, Anjou, Comice and Neis, in season from September to June. Controlled ripening enhances the natural flavor and juices. Pears, bananas, and tomatoes all require approximately the same ripening procedures, and with the importation of bananas curtailed, space is available to handle the bumper crop of pears. Pears that are firm and slightly underripe are suitable for baking and cooking. Many suggestions for serving pears are given.

PRACTICAL HOME ECONOMICS

Vol. 22, October 1944

*Home economics curricula in four-year colleges. C. W. Hasslock.—p. 403.
*The history of home economics—Part IV. H. T. Craig.—p. 405.
*So you have management problems. M. L. Cronan.—p. 417.

Vol. 22, November 1944

*The history of home economics. H. T. Craig.—p. 471.
*A high school unit on choosing a vocation. B. L. Nelson.—p. 475.
*Children are smart—about food. E. H. Larson.—p. 482.
*Evaluating school cafeteria service. K. C. Wisely and J. Mathis.—p. 483.

Home Economics Curricula. The catalogues of 598 colleges and universities which give degrees to white women were analyzed to discover the recognition given to the field of home economics and to determine curriculum content for majors in the several phases of home economics. Current educational literature also was searched to find trends and critical issues which pertain to home economics in the college curriculum. Among colleges studied, 92.8% allow entrance credit in home economics, the usual number of units being 4. There is a tendency toward placing more stress on graduation from an accredited high school, the percentile rank in the high school graduating class, matters of health, personality and character, and grades on tests for intelligence, placement, and aptitudes. Of the colleges and universities, 60.5% offer work in home economics. The median number of semester hours offered in state and municipal universities and colleges is 71 to 80; in agricultural and technological colleges, 101 to 125; in teachers colleges and private universities and colleges, 41 to 50. State and municipal universities and colleges offer degrees with majors in home economics in 82.6% of the institutions, agricultural and technological colleges in 53.7%, and private universities and colleges in 39.7%. The range of the median requirements in home economics for these degrees is 21 to 51, 27 to 32, and 28 to 31 semester hours in the respective groups. Home economics is offered especially for men students in some colleges; the war has brought about increased emphasis on study of nutrition for men in a few colleges. The median number of semester hours of home economics required, ranges from 18 to 60, and home economics is the only subject definitely required for all degrees. There is a tendency to omit foreign language and mathematics requirements and to stress social sciences and art. Survey and orientation courses are entering the curriculum, also independent study, vocational and educational guidance, various problems courses, and field and apprenticeship work of different kinds. There is a noticeable tendency to suit college curricula to needs of individual students and to changing needs of society. More stress is being put on subject matter dealing with foods and nutrition, home management, consumer economics, child guidance and family relations. Home economics curricula are overcrowded, particularly those leading to the education degree. Traits of personality and character are being stressed in selecting students for technical and professional fields in home economics. There is some overlapping of home economics work in high schools and colleges.

History of Home Economics. Continues listing of outstanding achievements at successive Lake Placid Conferences, including description of first public school cooking class, beginning of the school lunch (1903), and formulation of the A.H.E.A. as a national organization.

Management Problems. Minimum essentials of lunchroom records are: daily food count, perpetual or monthly physical inventory, use of cash register, a checking account. Includes directions for preparation of monthly profit and loss statement.

History of Home Economics. The first meeting (1909) and early milestones of the A.H.E.A. are described, including establishment of the association's journal; listing of occupations open in 1909–10; definition of home economics as "the study of the economic, sanitary and aesthetic aspects of food, clothing and shelter as connected with their selection, preparation and use by the family in the home or by other groups of people" (1913); adoption of the Constitution making eligible for membership anyone interested in home problems (1914), listing of federal acts affecting home economics (1862–1937).

Choosing a Vocation. The high school girl should have the guidance of an older, experienced, trusted, and sympathetic individual; access to biographies and autobiographies of people who have successfully followed a career in her chosen field; and she should talk to individuals who are now in that occupation and see one or more workers on the job. The teaching of a unit of work on "Choosing a Vocation" may arouse the curiosity of the more passive young people. Students expecting to enter college will wish to know more about positions for teachers, dietitians, home demonstration agents, nursery school directors, homemaking journalists, and radio speakers on homemaking programs. Having successful people from various occupations talk to the class and answer questions is invaluable.

Nutrition in Elementary School. As a means of aiding elementary teachers of Wyoming with the teaching of nutrition on the elementary level, the Itinerant Adult Homemaking Education Worker from the State Office of Education was loaned to various communities throughout the state. Help given consisted of training meetings for elementary teachers, with factual information, source materials, teaching helps and suggestions given; and the teaching of a demonstration lesson to the various grades so that teachers could observe methods and techniques. In some localities, school administrators invited parents to visit schools while the demonstration classes were in session.

School Cafeteria Service. A school cafeteria score card to evaluate nutritional effectiveness is illustrated with interpretation of scores.

Nutrition Foundation Grants

Grants of $127,750 for research projects in nutrition were made by the Nutrition Foundation, Inc., Chrysler Building, New York, at the third annual meeting of its board of trustees in Minneapolis, November 30, according to a statement by George A. Sloan, president. Since its organization by food and related manufacturers three years ago, the Foundation has made appropriations of $654,700 to support 95 separate research projects in American universities. Total contributions of $1,524,500 have been made to carry on the work of the Foundation by 50 food and related manufacturers. Dr. Charles Glen King, scientific director, said that 14 of the grants are for the extension of studies already under way. These include: relation of niacin and other B vitamin deficiencies to oral diseases, evaluating foodstuffs for meeting the human protein requirement, carbohydrate metabolism study, diet and congenital malformations. New grants approved include: research in community nutrition, Harvard University; the iron requirement of the adolescent girl, University of Chicago; the intermediary metabolism of carotene, University of Southern California; nature of the ascending paralysis produced in dogs on a B complex-deficient diet and responding to biotin therapy; and studies on pantothenic acid, Meharry Medical College.

In discussing the new grant to Harvard University for research in community nutrition, Dr. King said that this study was one of a series of similar studies to be initiated in different parts of the country to obtain information correlating nutrition and health. He said that considerably more factual and objective information is needed on the relationship of nutrition to health. He also said that there had been but few studies made concerning nutrition and scholastic attainment. The study by Harvard will be made in cooperation with the health and education authorities.

At a luncheon meeting attended by a number of distinguished representatives of education, science, industry, agriculture and finance, Col. Rohland A. Isker, in charge of Subsistence Research for the Army and speaking for Col. Georges F. Doriot, said:

"In this country, Dr. Charles Glen King, scientific director of the Nutrition Foundation, has been conducting interesting and important experiments on human subjects which have demonstrated the types of food which will best sustain flyers at high altitudes. He has found that pre-flight and in-flight diets high in carbohydrate and low in fat and protein enable men to withstand the strains of high altitude flight much better than other types of diets. The application of his findings has resulted in a measurable decrease in the number of those flying accidents which up to a year ago had to be attributed to 'causes unknown.'

This Palatable Variety . . .

liver, heart, tongue, sandwich meat, bacon, bologna, frankfurters, liver sausage, salami, etc. . . . deserve dietary recognition not only for their high protein content but as good sources of the vitamins as well.* Their palatable taste, their availability, and their relatively reasonable cost merit frequent inclusion in the diet.

*"Canadian bacon, summer sausage, and sandwich meat contain larger amounts of thiamine than fresh beef, veal or lamb but smaller amounts than fresh pork . . . Of the fresh organ meats studied heart was found to be the richest in thiamine . . . Liver and tongue contained about the same amount of thiamine as muscle meat . . . Liver sausage contains nearly 3 or 4 times as much riboflavin as any of the other prepared meats . . . The other prepared meats fall in the same range as fresh muscle meats . . . The nicotinic acid contents of the prepared meats and fresh muscle meat are about the same . . ." (McIntire, J. M.; Schweigert, B. S.; Herbst, E. J., and Elvehjem, C. A.: Vitamin Content of Variety Meats, J. Nutrition 28:35, July 10, 1944).

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO . . . MEMBERS THROUGHOUT THE UNITED STATES

News Notes

World Food Production. Food production in the world as a whole shows a moderate increase since the outbreak of the war despite scarcities of fertilizers, equipment, labor, and other essentials of production, USDA Office of Foreign Agricultural Relations reported in a December 3 release. While production shows a marked expansion in many countries, it has declined in others, particularly in some of those most vitally affected by the war. A survey of food production was made in 1942 and 1943 in 30 countries having about 60% of the world's population, which showed an expansion of about 7% as compared with the prewar level. This increase is based on farm output of food crops and livestock products, measured in terms of calories. The most outstanding increases by major geographic regions were in North America, where production shows a 30% expansion. Other increases were in South America with 17%, Southern and Eastern Asia with 3%, and Oceania and South Africa with 1%. In Western Europe and North Africa, however, production declined by 6% and in the Middle East by 5%. The data available are not sufficient to make possible a satisfactory measure of changes in production in such war-torn areas as Russia, occupied China, British Malaya, and the Netherlands Indies. Officials expressed the belief, however, that production in those areas has declined considerably. The increase in the world as a whole was probably no more than sufficient to keep pace with the estimated increase in the world's population in that period, the department said.

The war brought about many changes in individual countries and geographic regions. Surplus producing regions, especially those in North America, strongly emphasized livestock production, but their food crops were increased almost as much. In countries normally producing less food than they consume, especially those in Western Europe, emphasis was placed on expanding the production of crops and livestock. This emphasis, it is pointed out, accounts for a large part of the increase of more than 60% in the caloric output of British agriculture.

In North America, the output of edible oils increased about two thirds, while in South America it nearly trebled; meat, poultry and eggs as a group increased 43% in North America, 16% in South America; cereal, 30% in North America, 4% in South America; sugar 8% in North America, 20% in South America. In Western Europe and North Africa the output of fruits and vegetables increased 5% and edible oils 9%.

Under date of December 13, it was reported that the European food situation has deteriorated and unless imports increase, the caloric value per capita of food supplies available during 1944–45 in continental Europe (excluding Russia) will be somewhat smaller than last year and little more than 85% of the prewar average. The 1944 harvest was poorer even than the subnormal harvest of 1943. Potato production may be little, if any, larger than last year's low crop. Vegetable oil output is appreciably lower. Production of milk and eggs during the current season probably will show no important change. Meat production, however, may increase slightly. The burden of any reduction in food supplies will be borne, as in past years, by the nonfarm population, millions of whom have been subsisting during much of the war period on less than 2000 calories daily. Deterioration in the German food situation is attributed in part to adverse effects on 1944 crops of unfavorable weather, and fertilizer and labor shortages, and in part to reduction in net imports and food requisitions abroad. France will have larger supplies of home-produced food than last year. Domestically-produced food supplies in liberated Italy will again fall short of quantities needed to cover even wartime rations, except fats and oils. Large imports of bread grains and sugar will be necessary. The situation in urban centers of Italy has become more precarious because of continued requisitions by the Germans and continued deterioration in the distribution system. In Greece, the food supply situation remains bad. In the Soviet Union it is somewhat better but will continue to be tight for the civilian population, especially in the case of fats, meats and dairy products.

Institute of Food Technologists. "Preservation of Food Values" is to be the theme of the Sixth Annual Conference at the Hotel Seneca, Rochester, N. Y., May 21–23. Preparatory to the conference, a regional meeting for members in western New York State was held November 4, the program of which included: Future Trends in Food Processing, Dr. Fred C. Blanck, H. J. Heinz Co., president of the institute; Vitamin Retention and Fortification of Processed Foods, G. C. Siemers, Hoffmann-La Roche, Inc.; Recent Researches on the Industrial Application of Pectin, Dr. A. I. Kertesz, New York State Agricultural Experiment Station; and Use of Glutamic Acid in the Food Industry, Dr. M. J. Blish, International Minerals and Chemical Corp.

The Third Institute of Hospital Purchasing, conducted by the Purchase Institute Committee, Council on Administrative Practice, American Hospital Association, Chicago, November 13–17, was attended by 97 purchasing agents and administrators from 26 states. Lectures, a seminar, and a round-table, including discussion of the work being done by the Division of Simplified Practice, National Bureau of Standards, demonstrations of federal inspection and grading of preserved foods, and of meat cutting by representatives from the National Live Stock and Meat Board, were interesting features, according to Martha Jane Moffett, first administrative dietitian, Good Samaritan Hospital, Cincinnati. At present, judged by the comments of the speakers, dietitians in many institutions do their own purchasing, while in others the purchasing agent does the purchasing after the dietitian submits her requisitions with specifications.

National Foundation for Infantile Paralysis Annual Fund-Raising Appeal. The year 1944 will go down in history as one of the worst infantile paralysis epidemic years in the United States. Funds raised through the 1945 March of Dimes, January 14–31, will be used to provide continued treatment for 1944 victims and those of previous epidemics. They will also serve as a bulwark of defense against any 1945 invasion of this home-front enemy. Fifty per cent of each contribution is retained in the county where it is provided; the balance will be used to further the national program of research, epidemic aid, and education.

First Canadian Restaurant Conference. The first annual conference of the Canadian Restaurant Association will be held at the Royal York Hotel, Toronto, January 15–17, as announced in the November 9 National Restaurant Association *News Letter*.

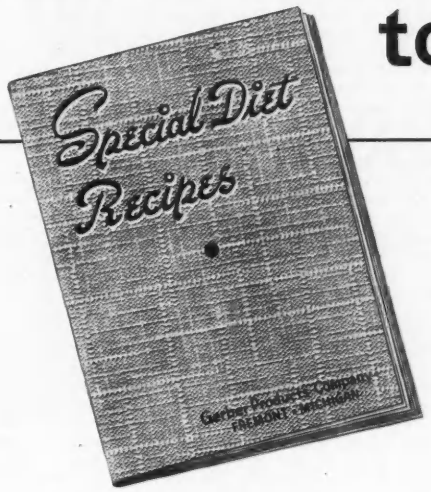
Newspaper Food Editors Meet. A special committee of newspaper representatives working with ten important food processors and groups was host in Chicago to 34 food editors from 17 large metropolitan cities October 30–November 3. Grace Hartley, *Atlanta Journal*, was chairman of the group, which included J. H. Sawyer, Jr., Sawyer-Ferguson-Walker Company; W. A. Daniels, Scripps-Howard Newspapers; Gene Corcoran, The Branham Company; Ken Dennett, O'Mara & Ormsbee, Inc.; and W. F. Johns, Ridder-Johns, Inc. Representatives of Armour & Company, National Dairy Council, American Dairy Association, Quaker Oats Company, Evaporated Milk Association, Wilson & Company, National Live Stock and Meat Board, American Meat Institute, Libby, McNeill & Libby, John F. Jelke Company, National Association of Margarine Manufacturers, Swift & Company, and General Mills, Inc., took part in the 5-day series of conferences. Speakers included Esther Latzke (Marie Gifford), Millicent Atkin, Dorothy Gill, Marye Dahnke, and Mrs. Beth Bailey McLean.

Dietetics as a Profession. The revised booklet prepared for the A.D.A. by Anna M. Tracy and her committee (copies of which are available at 25 cents each on application to the A.D.A., 620 N. Michigan Ave., Chicago 11) was included in the Annual Exhibition of Design in Chicago Printing, having been accepted by the Society of Typographic Arts upon the recommendation of its judges. Gladys E. Hall, executive secretary, A.D.A., states that the whole exhibit will be on display in libraries in other large cities.

National Food Situation. The total civilian supply of food in 1945 is expected to continue about the same as in 1944, when per capita consumption was at least 7 per cent above the prewar average, 1935–39, according to the "1945 outlook issue" of USDA's *National Food Situation*. Supplies of some fruits, turkeys, and beef may be larger, but supplies of pork, potatoes, butter, and perhaps chicken (because of some decrease in production) and some fresh vegetables may be smaller. Civilian food supplies will not be generally changed by the end of the European war since noncivilian requirements will continue to take a substantial proportion of the total food supplies through 1945. It is probable that civilians will consume at least as many eggs as in 1944.

Because of high consumer income, consumption of fluid milk and cream in 1944 was over 410 lb. per capita. Creamery butter output was the lowest in 20 years, and civilian per capita consumption of butter in 1943 and 1944 was the lowest in over half a century. Military and lend-lease procurement of cheese and evaporated milk resulted in a decrease in civilian consumption of those products, despite increased production. Milk production in 1945 may increase considerably if returns to dairy farmers, including dairy production payments, remain at about the same level as in 1944. Most of this increase is expected in the North Atlantic and East North Central regions because of increased cow numbers and more favorable feed supplies than in 1944. Since whole milk marketings are the general rule in these areas, most of the increased production

Recipes that Lend Variety to the Ulcer Diet



Booklet Free on Request

To offset the monotony of the diet in ulcer and other gastro-intestinal cases, Gerber nutritionists have compiled this helpful booklet of 51 special recipes. These recipes bring variety and color to the restricted diet thereby helping the patient adhere to the diet.

The recipes based on the use of Gerber's Cereal Food and Gerber's Strained Oatmeal are especially recommended where appreciable amounts of iron and thiamine are desirable. The amount of crude fibre present in these two cereals is so low that it is non-irritating to the gastro-intestinal tract of infants one month old.

Other recipes in the booklet include special dishes made with Gerber's Strained Foods such as Soups, Salads, Souffles, Luncheon Dishes, and Desserts.

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CEREALS STRAINED FOODS CHOPPED FOODS

probably will be utilized in the manufacture of whole milk products as evaporated milk, dry whole milk, and American cheese, especially if noncivilian demands for these remain fairly large. In the West North Central States, slight declines in milk production are probable if manpower difficulties continue and present price relationships among dairy products are maintained. Creamery butter production in that area may drop in 1945 compared with 1944.

Meat production in 1945 may be about 2 billion pounds smaller than in 1944, when total output exceeded 24½ billion pounds (dressed meat basis). Production probably will continue at a reduced level in 1946, which still will be considerably higher than in the prewar period. Any decrease in meat demand in 1945 probably will be nearly offset by decrease in supplies. Meat prices are likely to hold close to ceiling levels in 1945, but may decline in 1946. Slaughter of sheep and lambs in 1945 is expected to be 10 to 20 per cent less than in 1944.

Citrus fruits will comprise the principal fresh fruits during the winter, although apples, pears, grapes, and cranberries will also be of considerable importance. Despite heavy damage to Florida citrus crop, civilian supplies of the fresh fruits, particularly oranges, are expected to be ample. Production in other areas, especially Texas, will partially offset reduced supplies from Florida.

Civilian supplies of canned and dried fruits are expected to be 10 to 20 per cent less than last season, but civilians may expect to receive considerably more frozen fruits, and as much canned fruit juice as previously. Approximately 16,000,000 tons (fresh basis) fruit were produced in 1944, a new record, and the 1944–45 crop is expected to be only about 6 per cent smaller.

Aggregate production of walnuts, almonds, filberts, and pecans is indicated to be 14 per cent larger than last year.

About 5000 tons of Turkish dried figs, much like those produced in this country, will appear in retail markets early in 1945, according to WFA, quoted in the November 27 *Food and Home Notes*. Dates from Iraq also are en route here for the first time since the war began, about 15,000 lb. having been set aside for the United States under an agreement with the British. Persian dates are darker and drier than the "fresh" dates produced in California, where they are packed as they come from the tree without extra drying. None of these imported figs and dates have been set aside for the armed services.

The shortage of lemons during the fall is said by WFA to have been traceable to last year's flu epidemic, not to the Florida hurricane. Practically all of the commercial lemon crop in this country is grown in California, but the hot lemonade and lemon juice consumed by flu and cold sufferers last year drew most of the lemons out of storage, and some growers harvested their fruit before it had reached full size in order to take advantage of favorable prices. The 1943–44 crop was estimated at about 11,000,000 boxes —a little larger than the 10-year average; the 1944–45 crop probably will be well over 13,000,000 boxes. Because of the heavy demand last year, fewer lemons than usual were processed for flavoring, concentrates, canned lemon juice, etc.

A small bright-colored citrus fruit—the calamondin, which looks like a golf-ball orange but tastes more like lemon or lime, is often used by housewives in Florida and Gulf Coast areas when lemons are scarce, according to *Food and Home Notes*. Calamondins are easy to "juice," have a loose thin rind, few seeds, and no irritating substances in the rind, so may be used whole like kumquats. Their ripening season is mid-fall to mid-spring, but they neither keep nor ship well.

Frozen eggs bought by WFA, not needed now in the domestic market, will be converted to dried eggs for export purposes. WFA in November offered to all commercial egg buyers 132,859 cases of shell eggs, purchased by WFA during the flush production period to support prices.

The supply of frozen fish in storage is so large that much must be removed before the new catch can be stored, according to WFA's *Industrial Nutrition Service*. Not all fish is plentiful, however. Plentiful varieties are frozen cod fillets, mackerel, flounder, scup, pike, and lake herring. The bulk of the supply is in fillets. Most varieties of canned fish are scarce, due to the large quantities used by the military forces.

The 1945 national production program, suggesting about the same total crop acreage as in 1944, was announced by War Food Administrator Marvin Jones. The individual goals provide a continuance of 1944 levels for most of the more important crops; slight increases in number of pigs farrowed; in milk production; and in cattle slaughter—to reduce total cattle numbers. They suggest a decrease of about 16 per cent in egg production. After the states have determined individual production goals, WFA will announce the resulting national totals. If, meanwhile, the demand situation changes materially, WFA will suggest desirable modifications.

Fat Salvage. Full responsibility for the program of salvaging used household fats has been transferred from WPB to WFA. OPA will continue to allow 2 red ration points per pound for used fats. Work of volunteer local committees and field employees of WPB in furthering a program of education in all parts of the country will proceed, Lee Marshall, WFA director of distribution, announced in a release dated November 30. He added that "many people have assumed that victory in Europe will reduce the need for salvaging household fats, but that is far from the fact. Right now, household fat salvage is a source of supply which must be utilized fully if we are to avoid the necessity of going into reserve stocks of food fats for industrial purposes." A reduction of about 1 billion pounds in the 1945 fats and oils supply is predicted, principally because of lower contemplated yields in domestic oil seed crops, a sizable drop in the expected hog slaughter, and the continued lack of imports from the South Pacific.

Cost of Living 1944–45. According to the "1945 outlook issue" of the *Demand and Price Situation*, Bureau of Agricultural Economics, the stability of prices of most commodities, maintained during the last two years, will probably continue in 1945. Wholesale prices of farm products are likely to be moderately lower, large current supplies having already caused a slight decline. Prices of manufactured articles have risen very little in the last two years, yet the supply of many such is insufficient to meet the demand. Price controls will prevent price rises for most products, but such changes as are permitted under existing regulations are more likely to be increases than decreases. Costs of living in large cities have been increasing very slowly in recent months, but food costs during the first 8 months of 1944 averaged 1.8 per cent lower than for the corresponding period in 1943, while nonfood costs were 3.7 per cent higher. Food costs probably will be somewhat lower in 1945, nonfood costs slightly higher. The national income for 1945 is likely to be somewhat lower than in 1944, because of reduction in Government expenditures. It is not likely that production for civilian purposes will be increased as rapidly as production for war is reduced; consequently, the total national output of goods and services will be lower.

The October *Marketing and Transportation Situation* contains a table showing food cost and expenditures compared with total income per person, and includes the following figures: average total income per person, 1935–39 average, $520, of which $118, or 26 per cent, represents food expenditure. For 1943, the figures are $1,042 and $219, or 32 per cent, respectively; and for the month of July (the latest date included in the table), $1,131 and $243, or 32 per cent, respectively. A chart in the same issue shows that consumer incomes have risen faster than retail food prices since 1938. The percentage of income required to purchase foods consumed during the prewar years declined. Since then actual food expenditures have increased more than retail food prices, reflecting larger quantities consumed and shifts to purchases of foods involving the expense of additional marketing services, such as prepared meals.

Rationing and Price Control. Country shipper ceiling price increases on Florida grapefruit and Florida oranges will result in an increase to the retail consumer of 1½ to 2 cents per pound for Florida grapefruit, and 1 cent per pound or 5 to 6 cents per dozen for Florida oranges. The hurricane reduced the Florida grapefruit crop to about 56 per cent of average and the early and midseason orange crop to about 80 per cent.

Processor ceilings for the 1944 pack of Washington and Oregon light sweet cherries and Bartlett pears will result in consumer prices about 1 cent more for a No. 2½ can of Bartlett pears and about 4 cents a can more for sweet cherries than under the 1943 ceiling prices.

Methods for figuring ceiling prices of minor fruits, berries, and vegetables of the 1944 pack at the processor level, announced by OPA November 13, will mean that the prices consumers will have to pay will probably be lower than last year.

Because of damage to the apple crop in the Northeastern states, ceiling prices were increased 15 cents a standard box, November 23.

Changes in ceiling prices of bananas, effective December 4, resulted in a saving of about 1 cent a pound to consumers.

Ceiling prices of semivitrified china at the manufacturing level will not be increased, remaining at 105 per cent of the October 1–15, 1941, base period, OPA announced November 20.

Nutrition Program Materials. A booklet, *Cooking Dehydrated Vegetables*, issued by BHNHE, Agricultural Research Administration, USDA, Washington, gives directions and recipes for use with commercially or home-dried vegetables.

A revised, selected list of health films is available from the American Film Center, Inc., 45 Rockefeller Plaza, New York 20. Included are: *Baby Care: Feeding*, dealing with infant feeding and food preparation; *Before They Are Six*, telling the story of the Canadian wartime nurseries; *A Friend for Supper*, warning children not to waste food; *Fundamentals of Diet*, for use in elementary schools; and many others. All are sound films. Information on technical data, producer, content, distribution, and rental cost is included in the list.

Cereal foods

ARE "KEY" FOODS IN THE "BETTER BREAKFAST" PROGRAM

Probably no other change in America's eating habits would be so fruitful in terms of added energy as better breakfasts.

For, when breakfast is slighted, mental and physical energy cannot easily be maintained during the morning hours. Moreover, if breakfast does not provide its share of the day's requirements of proteins, vitamins and minerals—a burden is thrown upon the other two meals of the day. In such cases the day's requirement of these nutrients may not be met.

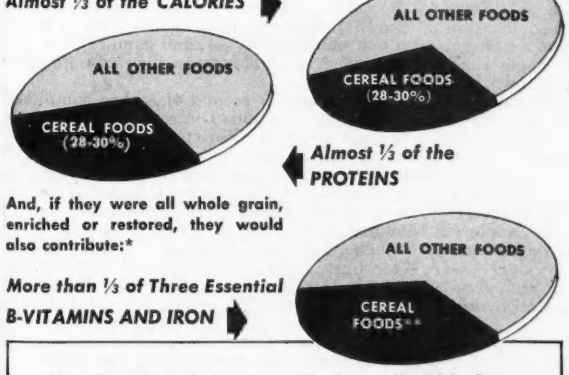
The question is, what constitutes an adequate breakfast? In the recent Roper nation-wide breakfast survey it was found that medical and nutritional authorities agree that breakfast should supply from ¼ to ⅓ of the day's total nourishment. And more than 80% of those questioned specifically included breakfast cereals among their recommendations for an ideal breakfast.

Cereal grains—seeds in which nature has placed a variety of nutrients necessary to the sprouting plant—are important as a source of calories and cereal proteins. In their whole grain state, or in their modern enriched and restored forms, they are also a very good source of three B-vitamins and iron. (*Note the "three segments" illustrations below.*)

In addition, cereal foods are excellent carriers of *other* "protective" foods such as milk, cream, fruit and (in the case of bread) butter. And, because they are available in so many appetizing forms, they add variety and taste appeal to breakfast menus. They stimulate a desire to *eat* a good breakfast.

In the "better breakfast" program, accordingly . . . cereal foods may be considered "key" foods.

Cereal foods (flour, breakfast cereals, etc.) contribute to the average American diet:*


Almost ⅓ of the CALORIES
ALL OTHER FOODS
CEREAL FOODS (28-30%)
ALL OTHER FOODS
CEREAL FOODS (28-30%)
Almost ½ of the PROTEINS
And, if they were all whole grain, enriched or restored, they would also contribute:*
More than ⅓ of Three Essential B-VITAMINS AND IRON
ALL OTHER FOODS
CEREAL FOODS**

*Based on 2800 calorie pre-war diet. Data adjusted for losses in cooking.

**40% of the Thiamine, 45% of the Niacin, 38.5% of the Riboflavin, 45-46% of the Iron (in relation to allowances recommended for a 2800 calorie diet).

GENERAL MILLS, INC.

Minneapolis, Minnesota

Makers of

GOLD MEDAL FLOUR BISQUICK
WHEATIES CHEERIOATS KIX

Our family flours are all enriched to the new, higher gov't standards, including Drifted Snow "Home Perfected" Flour (in the West) and Red Band Flour (in the South). Bisquick contains enriched flour. Also, all our ready-to-eat cereals are restored. All the brands, listed above, are registered trade marks of General Mills, Inc.

Meat for School Lunches. The number of luncheons served in school cafeterias has expanded to such an extent that OPA has permitted suppliers of fabricated beef and veal cuts, ground beef and miscellaneous beef items to apply for increased sales quotas to meet the needs of these institutions, effective November 20, 1944.

Food Briquettes. The compression of dehydrated vegetables to save space over and above that saved by dehydration, has been given attention by the Agricultural Research Administration, USDA. New equipment, including a 40-ton highly adjustable press, is now at work at the agricultural engineering laboratory of the Bureau of Plant Industry, Soils, and Agricultural Engineering, Beltsville, Maryland. Many factors in the compression process can now be varied for particular experiments: pressure, duration of pressure or "dwell," temperature of the material, and moisture content of dehydrated material. The press can turn out food briquettes rapidly, yet is sufficiently flexible so that the several important factors may be varied in order to retain a maximum of the original quality of a product. Quality determinations are made by BHNHE. The press can be used to compress any kind of dehydrated food at pressures up to 5600 lb. per square inch and the pressure held at any point for a specified time, a factor that appears to be important in preparing briquettes that will hold their shape. Circulating hot water in both parts of the compression dies can be so controlled as to keep the temperature at any point between 100 and 210°F. while the pressure is applied.

Preheating of the food, imperative in producing highly compressed and noncrumbling briquettes, is done in a special conditioning vessel in which temperature and humidity may be varied. One-pound dehydrated food briquettes of sweet potato, beet, carrot, and cranberries will make approximately 25, 34, 30, and 100 servings, respectively. Quick-cooling compartments have been constructed to determine if deterioration of quality in commercial food briquettes has been due in some degree to lengthy retention of the original heat in the interior of the mass after compression.

Medical Care in an Industrial Corporation. A reprint from the *Railroad Journal*, entitled "The American Way," in which a typical employee is introduced to the benefits offered to workers in the Abbott Laboratories, and which is said to show "an enlightened management viewpoint," is available from the Abbott Laboratories, North Chicago, Ill. Among the benefits described are the company cafeteria, the publications prepared by a nutrition committee connected with the company, and demonstrations on dietary subjects by members of the staff.

Pamphlets on Foster Care. Two pamphlets: *About Foster Children*, containing suggestions to nurses and social workers, and *To Foster Parents*, prepared by the New York City Committee on Mental Hygiene and the Bureau of Child Hygiene, New York City Department of Health, have been published by the New York City Committee on Mental Hygiene, 105 E. 22 St., New York 10, priced at 25 and 10 cents, respectively.

Nutrition Award. A special grant of $50,000 has been given by Swift & Company, Chicago, to the University of Cincinnati for a 5-year research program on proteins and their rôle in rehabilitating persons disabled by nutrition deficiencies. The study is to be carried on at Hillman Hospital, Birmingham, Ala., under the direction of Dr. Tom D. Spies, University of Cincinnati College of Medicine.

A Clinical Society of the New York Diabetes Association has been organized which will have contact with related technical groups such as dietitians, laboratory technicians, nurses, and social workers, and, by close mutual association, is intended to promote scientific understanding and conquest of problems in the management of diabetes, especially as these are encountered in clinical practice.

Directory of Latin-American Scientific Publications. A comprehensive directory of leading Latin-American scientific publications which lists scientific journals by country and by subject, and describes the contents of each, published by the Division of Intellectual Cooperation of the Pan American Union, is available at a nominal charge. Two other publications of a somewhat similar nature are: *List of Agricultural Periodicals, Societies, Experiment Stations and Schools in Latin America*, prepared and released by the Union's Division of Agricultural Cooperation, and *List of Medical and Public Health Journals of Latin America*, published by the Pan American Sanitary Bureau.

Mexico's Literacy Campaign. Mexico, with an estimated illiteracy rate ranging from approximately 46 per cent for the nation as a whole to as much as 65 per cent in certain states, is preparing to launch a mass attack on analphabetism. A campaign will begin early in 1945 in which each literate Mexican between the ages of 18 and 60 will be asked to impart his knowledge of reading and writing to at least one illiterate countryman.

To cope with the problem, the government is now preparing copies of special instruction charts, to be distributed to millions of amateur language teachers, which will be supplemented by special radio broadcasts and newspaper and magazine articles. It is believed that as many as 800,000 students will make sufficient progress during the first year of the program to qualify as literates under existing standards.

One of the knottiest problems facing educational authorities in the campaign is that indigenous groups in the country lack a written language. With the exception of Maya and Nahuatl, no alphabet exists for the scores of tongues spoken by Mexico's Indian populations, and the Roman alphabet employed elsewhere in the western world is useless in the instruction of native groups here. The problem is being solved by a series of charts, prepared by Mexico's leading linguists and philologists at the request of the Office of Indian Affairs, which employ familiar objects and symbols to represent the sounds found in Indian tongues. This new phonemic alphabet has been used with great success in experiments carried on among the Tarascan Indians of western Mexico, and is being used with some modifications among other native linguistic groups, with equal success. The phonemic charts will be used first to teach Indian groups to read and write their own language, and thereafter will be used to teach them to read and write Spanish.

Lillian Anderson Appointed Director, Nutrition Bureau, Community Service Society, New York. Miss Anderson, a member of the society's staff since 1931, succeeds Lucy Gillett who retired November 1. She was formerly nutrition supervisor in the public school system of Hawaii and teacher of nutrition and home economics, and is a member of the A.D.A. and A.H.E.A. Miss Anderson will direct the society's nutrition program, organized in 1920, and its dental-nutrition program which reaches upwards of 50,000 pupils annually in the city's public and parochial schools. She is editor of *Nutrition Notes*, a monthly bulletin published by the bureau, and chairman of the food committee, Nutrition Committee of Greater New York.

First Lt. Velma M. Eichorn, head dietitian, Hammond General Hospital, Modesto, Calif., was married April 8, 1944, to Major Kenneth C. Harwood, Engineer Corps. Major Harwood is now serving in the South Pacific, and Lieutenant Harwood, who is continuing her work at Hammond Hospital, writes: "We have just graduated our third class of apprentice dietitians. Four, including the first from Johns Hopkins Hospital, have arrived to make up the larger part of the next group. We feel that our apprentice course is an intensely interesting and worthwhile undertaking."

Dr. Lillian B. Storms, director of research, Department of Nutrition and Service, Gerber Products Company, Fremont, Mich., and vice-president, A.D.A., delivered an address on Forty Years Progress in Food Chemistry in a scientific program honoring Professor W. F. Coover, Iowa State College, November 15.

Mrs. Madeline Mehlig Receives Appointment. Mrs. Mehlig, authority on cooking, nutrition, and home management, was appointed director of home economics, Commonwealth Edison Company, Chicago, October 26. She will supervise lecture, demonstration, and test kitchen activities. Mrs. Mehlig was formerly state nutritionist in the Wisconsin Public Welfare Department, and director, School of Domestic Arts and Science, Chicago, before that institution merged with Northwestern University. Mrs. Mehlig is a member of the A.H.E.A. and A.D.A., and the Chicago Nutrition Committee and Chicago Women's Restaurant Association.

Charles A. Rovetta, associate professor of business economics, University of Chicago, has been appointed director of the restaurant administration program at the university to succeed George H. Brown, acting director. Mr. Rovetta is director of International House on the campus of the university, which includes the supervision of a million-dollar budget, the food units which serve a million and a half meals each year, and from 1942 to 1944 the maintenance of International House as barracks for 2000 members of the Army Air forces.

Colorado Dietetic Association. A second class has completed the one-year internship of the Fitzsimons Dietetic Training School under the direction of Capt. Mildred Allbritton. Sixteen apprentices have accepted Army commissions: Bonnie Bernholtz, Jeanne LaGrave, and Nellie J. Albanese after preliminary training at Camp Carson; after training at Fitzsimons General Hospital, Mary Bartlett, Sudbury, Mass.; Maude Battle, Cullowhee, N. C.; Ruth Yarshower, Elmhurst, N. Y.; Betty Howard, Ramona, Okla.; Gloria Grainger, Toledo; Kathleen Hughes, Virginia, Minn.; Mary Jane Keefe, Waterbury, Conn.; Anne Hines, Lawrenceville, Ill.; and Elizabeth Gable, Stewardstown, Pa.; from Hammond General Hospital, Mary Kozeff; from McCloskey General Hospital, Temple, Tex., Charlotte Henry; and from Valley Forge General Hospital, Phoenixville, Pa., Alice Rosen. The newly commissioned officers were to proceed to basic training November 1.

Connecticut Dietetic Association. The fall meeting was held in Hartford November 15. A. June Bricker, member, House of Delegates, reported on the A.D.A. convention and others who attended the meeting were asked to give two-minute reports.

Lois Dorr has announced her marriage to Lt. Robert Sharpe,

How can Calgonite cut my dishwashing costs?

THE only true basis for determining dishwashing costs is by the results you get.

Let's see what Calgonite with its amazing twin action offers in the way of results.

It cleans more dishes faster—and cleaner. It keeps the dishwashing machine free of scale and sludge. That eliminates the frequent scrub-out. It leaves dishes, glassware, silver, bright and sparkling. No repeat washing, hard scouring or acid dips to remove hard water film.

How? Twin Action! 40% of Calgonite is Calgon*. Calgon makes the water 100% soft, leaves no hard water precipitate. No wonder the high grade alkaline detergent can do so effective a job.

Add up the dollars twin action Calgon saves in labor, in wear and tear on equipment and you'll see why it is the most economical compound you could possibly use.

Because Calgonite's *Twin Action*★ cleans more dishes faster . . . and cleaner.

★*Twin Action* Calgonite is the only mechanical dishwashing compound which combines 100% water softening with thorough alkaline cleansing, without creating a precipitate . . . because Calgonite contains Calgon—the one material that makes water 100% soft—the one material that provides a clean solution which will not form film on dishes and scum and scale in the machine.

*CALGONITE *for mechanical dishwashing.*
*NOCA *for hand dishwashing and glass washing.*
*CAGOLAC. *The new sudsless cleanser for sparkling glassware.*
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Denver, Col. Dr. Helen S. Mitchell succeeds Mrs. Sharpe as nutrition director, American Red Cross, New Haven Chapter.

Appointments and transfers include: Lt. Elizabeth Dickinson, to Mitchell Field, Long Island; and Edith Marks, to New Haven Hospital, replacing Mrs. Margaret Flanagan as ward assistant.

Newly appointed community nutritionists in the state are Rita Hyatt, Bridgeport; Barbara Barrons, Fairfield; and Bernice Fussell, Greenwich.

Louise Mohr, past president of the association, and recently chief dietitian, Colorado General Hospital, was married to Lt. Richard Dennler, A.U.S., May 17, in Denver.

Kansas Dietetic Association. Officers for 1944–45 are: president, Mrs. Ruth Heckler; president-elect, Martha S. Pittman; vice-president, E. Pauline Richardson; secretary, Gladys Sissol; treasurer, Frieda Antener.

The November *News Letter* includes a message from Audris Rife, 1943–44 president; and excellent reports by Kathryn Tissue, member, House of Delegates, A.D.A.; Sister Regina Marie, chairman, Community Education Section, and Dr. Pittman, chairman, Professional Education Section, Kansas Dietetic Association.

Minnesota Dietetic Association. For the past two years the three local groups—the Head of the Lakes, Duluth, the Rochester, and the Twin Cities Dietetic Associations have met separately each month, and twice a year as a state association. The first joint meeting of the 1944–45 season was at Rochester, November 16, with Dr. Russell Wilder, Mayo Clinic, speaking on Adventure in Nutrition, an account of his experience in malnourished Newfoundland where he collaborated with other physicians from England, Canada, and the United States in a survey of the nutritional condition of a sample group of the population. The slides used in illustrating the lecture, due to a new photography process, were exceptionally realistic in coloring and fine detail such as skin texture. Major Glenn Bronson, Army Procurement Officer, Minneapolis Area, discussed Army Dietetics. Field trips included tours through St. Mary's Hospital and the Rochester Diet Kitchen. Later, at the Mayo Foundation House, Dr. Charles Aldrich, pediatrician, Mayo Clinic, spoke on Ancient Processes in a Scientific Age. The next state meeting is planned for May 1945.

The officers of the state association for 1944–45 are: president, Adeline Paulson, Veterans Administration, Minneapolis; vice-president, Margaret Pewters, Mayo Clinic; secretary, Jane Landy, Swedish Hospital, Minneapolis; treasurer, Elizabeth Boyer, Minneapolis General Hospital; nominating committee chairman, Jane Leichsenring, University of Minnesota Farm, St. Paul; member, House of Delegates, Harriet Warmington, Veterans Administration, Minneapolis. Committee chairmen are: Food Administration, Ellen S. Beaton, Northwestern Hospital, Minneapolis; Diet Therapy, Florence Schmidt, St. Mary's Hospital, Rochester; Nutrition Education, Mable N. Lagos, Community Health Service, Minneapolis; Professional Education, Ruth Nickel, St. Mary's Hospital.

Missouri Dietetic Association. The state bulletin for November reports that Lt. Mary Streidl has written a history of the Dietetic Department at Ft. Leonard Wood for the *Military History of World War II*. The following apprentices have finished training under her direction and received their commissions as second lieutenants, A.U.S.: Emma Loetterle, Grace Booker, Leonore Jeannotte, and Winifred Askun. Six students have begun their apprenticeships at Ft. Leonard Wood: Lottie Goldschmidt and Wauneta Wescott, Colorado General Hospital; Pauline McMahon and Elaine Curran, University of Minnesota Hospitals; and Marjorie Haggard and Dorothy Simmonds, Johns Hopkins Hospital.

New Jersey Dietetic Association. The twentieth annual meeting was held at New Jersey College for Women, New Brunswick, November 29. At the business meeting, with Irma Donnelly presiding, reports of officers and section chairmen were followed by special reports by Lillian Park, New Jersey delegate to the House of Delegates, A.D.A., and Winifred Cushing, who presented high lights of the Chicago convention. Other speakers included Dr. Mary de Garmo Bryan, who spoke on Sanitation and Safety, and Pauline Murrah, Dietitian's Aides.

Greater New York Dietetic Association. Dr. Robert S. Harris, director, Nutritional Biochemistry Laboratories, Massachusetts Institute of Technology, and nutrition consultant to the President of Mexico, addressed the November 8 meeting at the Herald Tribune Auditorium on The Foods of Mexico, including a discussion of the results of his laboratory analyses of various Mexican foods. Following the talk, Dr. Harris answered questions pertaining to the problems of nutrition in Mexico.

North Carolina Dietetic Association. At the eleventh annual meeting, November 18, officers elected for 1944–45 were: president, Blanche Tansil, Woman's College, University of North Carolina, Greensboro; president-elect, Capt. Dorothy A. Boyette, Regional Hospital, Ft. Bragg; vice-president, Sally Mooring, State Hospital, Morganton; secretary, Carolyn Willis, Baptist Hospital, Winston-Salem; treasurer, Margaret Ross, Memorial Hospital, Charlotte; delegate, Elizabeth O. Meinung, Salem College, Winston-Salem. Section chairmen include: Administration, Virginia Powell, Duke University; Community Nutrition, Flora W. Edwards, Woman's College; Diet Therapy, Helen Mullican, Rex Hospital, Raleigh; Professional Education, Virginia Newman, Presbyterian Hospital, Charlotte.

The program included talks by Bertlyn Bosley, principal nutritionist, Board of Health, and Stella Cusick, executive secretary, State Nutrition Committee on Nutrition Facilities of the State, also forums on Problems of Management led by Mabel Swanson, Marjorie Farrar, and Frances R. Ferrell, which included the following: Employee Problems, W. B. Logan, state supervisor, Distributive Education; Standards of Sanitation and Equipment, M. M. Melvin, chief sanitary inspector; and Cost Control, B. Morris, president, State Restaurant Association.

Marriages include: Sue Rodwell, Presbyterian Hospital, to Mr. L. S. Williams, June 24; Hannah Kallam, to Mr. John H. Mebane, Atlanta, Ga., July 22.

Dietitians who recently entered Army service include: Alla Meredith, nutritionist, Health Department; Jane Hereford, Duke University Hospital; and Mary E. Robinson, Watts Hospital.

Recent appointments are: Caroline Hall, graduate of Freedman's Hospital, now dietitian, Lincoln Hospital, Durham; Ernestine R. Kernodle, now assistant dietitian, University Hospital; Mary Robertson, Toronto, Canada, now professor of nutrition, Woman's College, replacing Orrea Pye, who is doing research at Columbia University; Florence Kitchen, Charlotte Memorial Hospital, now dietitian, Woman's College; Jane Crow, Salem College, now instructor of foods, University of Maryland; and Elizabeth Harvell, now director of Greensboro school cafeterias.

Lieutenant (USNR) and Mrs. Milner announce the birth of a daughter, Beverly, September 17, Washington, D. C.

The Rev. John W. Cobb and Mrs. Cobb (Rachel Moser, formerly dietitian, Guilford County Sanitarium) announce the birth of a son, John Moser, August 3, Blacksburg, Va.

Ohio Dietetic Association. Mrs. Alice H. Smith, nutritionist, Cleveland Health Council for the past seven years, joined the Michigan State Department of Health as nutritionist November 1. Mrs. Florence Cooley Seidel, Kroger Food Foundation, Cincinnati, became acting president of the Ohio Dietetic Association upon Mrs. Smith's resignation.

Kathryn Weitzel, nutritionist and case worker, Catholic Charities and Western Reserve University, has resigned her position because of illness in her family. After January 1 she will be at her home in Frankfort, Kentucky.

Magdalin Klobe, St. Luke's Hospital, Cleveland, has been appointed chairman of the Student Dietitian Committee of the Ohio Dietetic Association. Students will be encouraged to participate in state convention programs and committee work.

Margaret Stewart, former assistant dietitian, Cincinnati General Hospital, has been commissioned lieutenant, junior grade, and is stationed in the Commissary Office for Waves at Jacksonville, Fla. Mrs. Dayle Lloyd, graduate of General Hospital training course and formerly on the staff at Jewish Hospital, Cincinnati, has joined the staff of General Hospital.

Mrs. Mildred Hendryx, assistant dietitian, Children's Hospital, Cincinnati, resigned December 15 to join her husband at Ft. Benning, Ga.

The Cincinnati Dietetic Association held its second meeting of the year at the Kroger Food Foundation. High lights of the A.D.A. convention were reviewed by those who attended the meetings. Francis Voris, Food Clinic dietitian, Cincinnati General Hospital, led the discussion. The annual Christmas party of the association was held at Children's Hospital, December 4. Marion Peterson and Mrs. Marjorie Siler led the Christmas singing and members brought gifts to be distributed at the hospital on Christmas morning.

Winifred Royce, assistant dietitian, Lima Memorial Hospital, Lima, was married October 4 to Lt. W. Karl Dickson, Air Corps, now on active duty overseas.

Students at Western Reserve University Hospitals affiliated at the Lima Memorial Hospital for one month where they received special training in administration in a small hospital.

Ten district nutrition institutes were held in Ohio the latter part of September, consisting of panel discussions on Activities of Nutrition Committees, and The School Lunch, and presentation of films, Mess Improvement and The Man Who Missed His Breakfast. One county maintained a canning information center all summer; another sponsored five "better breakfast" community meetings. Several placed nutrition posters in restaurants and contributed articles to industrial magazines. One had a nutrition booth in the lobby of the courthouse for two weeks, where most of the questions concerned child feeding or food preservation. Another county purchased 12 pressure cookers and 6 food dryers to loan out during the summer. Montgomery county reported that two dolls, "Delia Drip" and "Gloria Glamour," helped teach

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Makes Citrus Juices Go Farther

Just add water to produce a pleasant fruity beverage approximating the Vitamin C potency and caloric value of fresh orange juice, at a standard cost of 54¢ a gallon!

Because of its palatability, economy and labor-saving convenience, many institutions had adopted V-C-B as a standard for administering Vitamin C, even before the present shortage and high cost of fresh citrus fruits.

Only one 4-oz. liquid portion of V-C-B beverage supplies individual daily requirements—1000 International Units —of Vitamin C and 50 calories. V-C-B is also valuable for fortifying fruit juices and beverages with Vitamin C.

Hermetically sealed in oxygen-free containers, V-C-B keeps indefinitely; there is no spoilage or waste. If you have not tried V-C-B, send for a trial order now!

V-C-B and all advertising claims for it are accepted by the Council on Foods of the American Medical Association.

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Single 1 lb. 12 oz. cans...each	$ 1.40
1 Doz. 1 lb. 12 oz. cans...doz.	13.50
3 Doz. 1 lb. 12 oz. cans...doz.	13.25
6 Doz. 1 lb. 12 oz. cans...doz.	13.00

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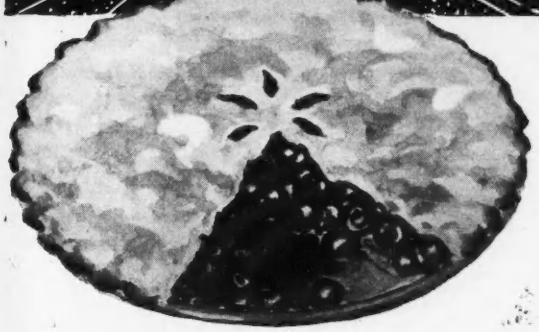

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It's as good as the finest that the home baker can make . . . in tender flakiness and rich flavor.

Contains more shortening and does not need baking powder to get expansion.

Labor-saving Downyflake Pie Crust Mix comes full prepared—just add water; mix.

It enables the baker to make an endless variety of mouth-wateringly delicious pies—faster, more economically.

"No one bakes bad pies with Downyflake Pie Crust!"

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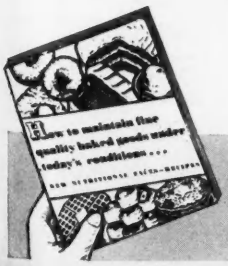

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nutrition to children at playgrounds and Girl Scout camps; this was a joint project of the Nutrition Committee, Red Cross, and Dairy Council. Projects, exhibits, and radio programs were the most commonly used means of reaching people. There were three working fronts: the home front, the school, and the industrial.

Three students majoring in nutrition, College of Home Economics, University of Cincinnati, are conducting a series of 8 demonstrations and discussions for 3 of the public health nurses' prenatal classes.

Oklahoma Dietetic Association. The first fall meeting was held in Oklahoma City, November 18. The program included installation of officers, reports of the A.D.A. Chicago meeting by the member of the House of Delegates and others who attended, and a report of the National Restaurant Association convention by Marguerite Ross.

Esther Latzke, Armour & Company, spoke before the Oklahoma City Dietetic Association October 11. Approximately fifty dietitians and student dietitians attended. Officers for the coming year are: president, Leona Whipple, University Hospitals; vice-president, Jane Lea Slater, St. Anthony Hospital; and secretary-treasurer, Mildred Smith, Truman Cafeteria.

Appointments include: Lavon Thompson, director, Oklahoma City Dairy Council; Mrs. Dorothy Goetzke, director, School Cafeteria, Oklahoma City School Board; Miss Grieve, Oklahoma Natural Gas Company; Florence Smith, Pine Mountain Hospital, Stringtown; Mary Pearl Austin, Oklahoma College for Women; Mrs. Dorothy Deffenbaugh, University of Oklahoma; Mary Gertrude Gray, manager, Hearn's Restaurant, Oklahoma City; Patricia Bealey, Anne Maude Cafeteria, Oklahoma City.

After a year's leave of absence, Dr. Daisy I. Purdy has returned to Oklahoma A. and M. College as head, Household Science Department, and director, Administrative Student Dietitian Training Course.

Philadelphia Dietetic Association. The program of the October meeting included a discussion on Egypt, Past and Present by Grace Nadig, former exchange professor in Egypt, and Marian Guercier, former Army dietitian. Elizabeth Miller presented a report of the A.D.A. Chicago meeting and George Henderson, Doughty and Sons, Philadelphia, spoke on Postwar Kitchens.

Recent appointments include: Ruth Jenkins Floeck, in charge of the dietary department, Pennsylvania Hospital; Frederica Everett, head dietitian, Hahnemann Hospital; Susan McGarvey, Jefferson Hospital; Grace E. Chamberlain, University of Pennsylvania Hospital; Elinor MacIntyre and Myana Krerdy, director of dining service and assistant, respectively, Temple University; Helen Conway and Catherine Langwill, director of food service and professor of nutrition, respectively, Drexel Institute of Technology.

Recent graduates of Philadelphia approved training courses have been placed as follows: Lt. Margaret Henney, Camp McCory; Lt. Dorothy Foss, Ft. Devens; Mary Louise Davis, Allentown General Hospital; Emily Peters, Veterans Facility, Coatesville, Pa.

St. Louis Dietetic Association. Fifty-nine members and guests enjoyed a dinner and reports by 6 of the 32 members who attended the A.D.A. meeting in Chicago. With Mrs. Helen E. Struble, program chairman, presiding, the following reports were presented: Report on Welcoming Luncheon and Banquet, Mrs. Theo Stebbins; High Lights of Diet Therapy, Charlotte Ludwig; Professional Education, Helen McLachlan; Administration of Dietary Department, Frances Anderson; Community Education, Virginia Daly; Clinic as Conducted at Illinois Research Hospital, Mrs. Mildred Frier. Mrs. Marie Harrington reported on the American Public Health Association convention.

News From Advertisers and Exhibitors. A booklet prepared especially for dietitians was distributed by the Arlington Chemical Company, Yonkers 1, N. Y., at the A.D.A. Chicago meeting. Sources, content, and uses of the protein hydrolysate product, Aminoids, are included in the booklet. Simple recipes for the administration of Aminoids, printed on a separate slip, were also distributed. It is assumed that both of these leaflets are available to dietitians who write for them.

Vitalox, liquid meat flavoring, was demonstrated at the meeting by Armour & Company, Chicago, and a booklet of Marie Gifford's recipes for using the product was distributed.

Fresh water cress, sent to the Chicago meeting from Martinsburg, W. Va. by the C. E. Dennis Water Cress Farms was available for sampling. A sheet showing proximate, vitamin, and mineral analyses of the Dennis water cress, and a packet of unusually fine quantity recipes for using the product in soups, cocktails, spreads, sauces, etc., were distributed.

Among the materials on display at the booth of the National Dairy Council, Chicago 6, was a booklet, *Ice Cream for You and Me*, for elementary school children, designed to fit into the social studies program, also a leaflet of suggestions for the teacher by Winifred Randell, University of Chicago Elementary School, author of the booklet. A folder of informative material concerning the outlook for dairy products was distributed recently to editors by the National Dairy Council.

Dietitians who visited the booth of the Groen Manufacturing Company, 4537 W. Armitage Ave., Chicago 39, had an opportunity to inspect a new stainless steel, insulated-shell, all-sanitary, steam-jacketed kettle, which the manufacturers hope to be able to supply shortly, at about the same price as standard kettles previously on the market. A "drip-trap" cover, and the reduced height of the kettle, were especially noteworthy features.

A descriptive booklet, *How to Give a Food Demonstration*, containing many practical, helpful suggestions, a complete outline for a food demonstration, and recipes to be prepared in a demonstration, was distributed by the Kellogg Company, Battle Creek, Mich., at the Chicago meeting. Among other new materials available at this booth were a card showing the nutritive value of Kellogg's ready-to-eat cereals; *The Grains Are Great Foods*, a folder describing the production of ready-to-eat cereals from harvesting to packaging, as well as recipes for their use; and a packet of recipe folders with attractive colored illustrations of tempting hot breads, cakes, supper dishes, etc.

The Pet Milk Company, St. Louis 1, announces the following list of revised publications of interest to those serving food in quantity, several of which were on exhibit in Chicago: *Comparative Recipes*, lecture and laboratory material demonstrating how dishes made with irradiated evaporated milk compare with the same dishes made with bottled milk or cream; *Money Saving Meal Planner; Milk Beverages; 44 Recipes Serving 50* (tested by the St. Louis Dietetic Association), all of which are available free in limited quantities. Single copies of the following are available on request: *50 Recipes Serving 50* (also tested by the St. Louis Dietetic Association); and *Quantity Recipes for Sandwich Fillings*. Complete list of publications may be obtained from the Home Economics Department of the company.

A feature of the steam-jacketed kettle, manufactured by Royce L. Parker, Inc., Bellwood, Ill., which attracted attention at the exhibit hall at the Chicago meeting, was the smooth, sanitary flow-line at the bottom of the kettle designed to facilitate cleaning. Other features observed were the one-piece draw-off valve, offset hinges on the cover so that all condensation drains clear of kettle, and the legs furnished in optional heights.

Two new products featured at the exhibit by Pfaelzer Brothers, Chicago, were peanut butter homogenized to prevent oil separation, and Grandee olive butter, a spread for sandwiches or hors d'oeuvre.

Enriched bread standards and other facts about enriched bread and rolls, including a chart showing the dietary contribution of enriched bread, are contained in a leaflet prepared by the Consumer Service Department, American Institute of Baking, 1135 W. Fullerton Ave., Chicago 14, copies of which are available on request, according to Gertrude Austin, nutritionist.

Paul J. Cardinal, manager, Vitamin Division, Hoffmann-La Roche, Inc., writes that a current advertisement addressed to millers and bakers on behalf of enriched flour and bread calls attention to the fact that in the future customers will calculate in terms of comparative nutrition as well as appearance and flavor and shoppers will tend readily to change their brand allegiances, therefore it is well to keep emphasizing both the fact of enrichment and its greater health values to the consumer.

Samples of concentrated orange juice were dispensed by the Mission Dry Corporation, 5001 S. Soto St., Los Angeles, during the Chicago meeting and a booklet describing the product was available to visitors at the booth. Subsequently those who registered were sent information sheets concerning Mission Brand concentrated lemon juice. It is stated that since the concentrate is made from the juice of selected lemons, ripened on the trees, the quality of the lemon juice is uniformly high the year round. The product is stored in refrigerated warehouses and must be protected at all times by refrigeration at 40°F. or under. A complete chemical analysis of the lemon concentrate is included.

Swiftee, a new powdered beef soup stock, has just been made available to hotels, restaurants, institutions, etc., according to an announcement by Swift & Company, Chicago. The new product is offered in a 6-oz. jar, sufficient for 24 servings of broth, 2 gal. of vegetable soup, or 1 gal. of gravy.

Millicent Atkin, director of home economics, Irradiated Evaporated Milk Institute, 307 N. Michigan Ave., Chicago, has prepared for distribution a number of card index recipes emphasizing the use of milk, rich in calcium and riboflavin, and supplying in proportion the high quality protein, other minerals, and vitamins which good whole milk supplies. These attractive recipes include shepherd's pie with sweet potato crust, Hungarian cabbage, lemon cake pudding, and oatmeal bread.